

# CONSERVATIONIST

DEPARTMENT OF NATURAL RESOURCES

JULY/AUGUST 1998





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# Mosquito Hawk

Although I can't prove it, the summer of 1963 must have been a real record-breaker for mosquitoes. At least that's the way it was at my uncle Virgil's farm.

The farm was located in Worth County, just a few miles south of Rice Lake. To a town kid like myself, the place was a paradise — complete with milk cows, a yard full of chickens, cousins and even a pony. My annual retreats there were the highlight of the summer, especially when it was time to bale hay.

The alfalfa crop was fantastic that year, and so was the local insect hatch. As the hay rack slowly bumped and swayed its way across the cut fields, huge swarms of gnats and mosquitoes would rise like a gray fog from the windrowed hay. No one was getting bitten, though. For almost as soon as the bugs had cleared the grass, they were driven back into cover by the scorching heat of the mid-day sun.

A slight cold front must have come through, because by late afternoon the air had cooled significantly and it seemed much drier. The huge columns



of disturbed insects were staying in the air longer now, and the high-pitched whine of a million tiny wings could be heard above the rhythmic pounding of the baler.

Suddenly, a lone dragonfly appeared from the north. It was a huge green darner and, for some reason, the insect took immediate and full control of my attention. The darner hovered in place for a moment, flew backwards a few feet, and then blasted forward with

Article and photos by  
Lowell Washburn

Each summer, these solar powered, 60-mile-per-hour predators capture and consume millions of harmful insects. Often referred to as mosquito hawks, dragonflies are among the most familiar — and popular — of our insects.

Green darner (above) and whitetail dragonfly (opposite page).





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incredible speed. As it passed overhead, the dragonfly suddenly hit the brakes and resumed its hover mode.

Only then did I notice the darner's prize — a plump mosquito held gently, but firmly, in the insect's front legs. Although the dragonfly appeared to be stationary, it skillfully maintained a precise space of five or six feet from where I stood, which meant it was traveling at the exact same speed as the hay rack. Without wavering from this position the elegant predator began to slowly rotate its huge, eye-dominated head. The exercise ended with the creature staring intently into my face. Confident that I posed no immediate threat, it turned its attention back to the mosquito. Using its "hands" to maneuver the victim into place, the darner lowered its head as the pincher-like mouth parts went to work.

It was not a pretty sight. Within seconds, the hapless mosquito was sliced, diced, shredded and swallowed.

The darner hovered for a moment, flew backwards a foot or two, and then blasted forward again. This time I saw it make the kill — another plump mosquito.

A second darner appeared over the hay rack, and then a third. The group soon became a squadron and, in almost less time than it takes to tell, hundreds of the superb predators had converged on the field. Dragonflies seemed to fill every square foot of the summer sky; hovering, darting, grasping — all making their own brand of hay on the local mosquito population. I soon discovered the best way to observe a "successful kill" was to pick a single target and stick with it. Dramatic results were never far in the offing. Mosquitos were dying by the thousands.

A sudden bump and a shout brought me back to reality. The show must have been even better than I realized. I had totally missed the last three bales of hay as they came off the machine.



Back in the dinosaur days, huge species of dragonflies silently cruised the swamp edge. Fossil remains have shown that some of these insects had wing spans exceeding two feet.





It has often been said that we humans are the only life forms that enjoy scaring ourselves.

That may help to explain why we are so fascinated by that specialized collection of wildlife commonly referred to as predators. Generally speaking, predators are dangerous, large and ferocious. You know, like lions, tigers and bears.

Speaking of scaring ourselves to death, what red-blooded predator fan doesn't like to curl up with a good story about someone being mauled by a grizzly or perhaps dragged off into the bush by a marauding man-eater?

But while the more spectacular meat-eaters are busy stealing the show, some of the earth's most horrendous predators seem to go largely unnoticed. The elegant and lethal dragonfly is a good example.

Dragonflies are marsh dwellers, and their complex life cycle begins underwater. From the very second they emerge from the egg, baby dragonflies are full-fledged predators.

Slowly creeping their way through an underwater network of submergent marsh plants and cattail roots, the tiny larvae carefully stalk, catch and devour virtually anything they are strong enough to hold. Growth rates are phenomenal. By mid-summer the larvae, called naiads, measure 2-1/2 inches and are fully capable of subduing creatures up to the size of tadpoles and small fish.

In late summer, the larvae begin leaving the water, usually by climbing a cattail stalk. Upon reaching a point several inches above the waterline, the naiads appear to go dormant for a period that may last up to several hours. As the

metamorphosis nears completion, the larva's skin splits down the back and, in a process little understood by science, an adult dragonfly emerges.

As soon as the transparent wings have hardened, the adult takes flight to assume its new identity as one of the world's most effective aerial predators. For the remainder of its life the dragonfly will patrol the airways, pursuing the mosquitoes, gnats, and caddisflies it will catch and consume on the wing.

Dragonflies are commonly credited as being our fastest insects. Like all insects, they are cold-blooded, and the warmer it gets the faster they go. Each of the dragonfly's four wings operate independently, and the creature can hover, move up, down, forward, or backward with equal grace. Anyone who has ever visited a local marsh for the purpose of collecting a few specimens will gladly attest to the creature's agility.

But in spite of all their speed, some dragonflies still end up being captured by birds — especially purple martins and kestrels. Most, however, are captured during the damp and cool early morning hours, when a lack of solar energy prevents the insects from getting up a full head of steam.

Back in the days when T-Rex was still leaving tracks in the mud, huge species of dragonflies silently cruised the swamp edge.

Fossil remains have shown that some of these insects had wing spans exceeding two feet. In an effort to comprehend just how spectacular such an insect would be, I crafted my own two-footer [complete with softball-sized head and immense mouth parts] and hung it on the wall.

At first, it was intriguing to consider the potential of such a predator. A few nights later, however, I decided to take the creature down. I was beginning to scare myself.



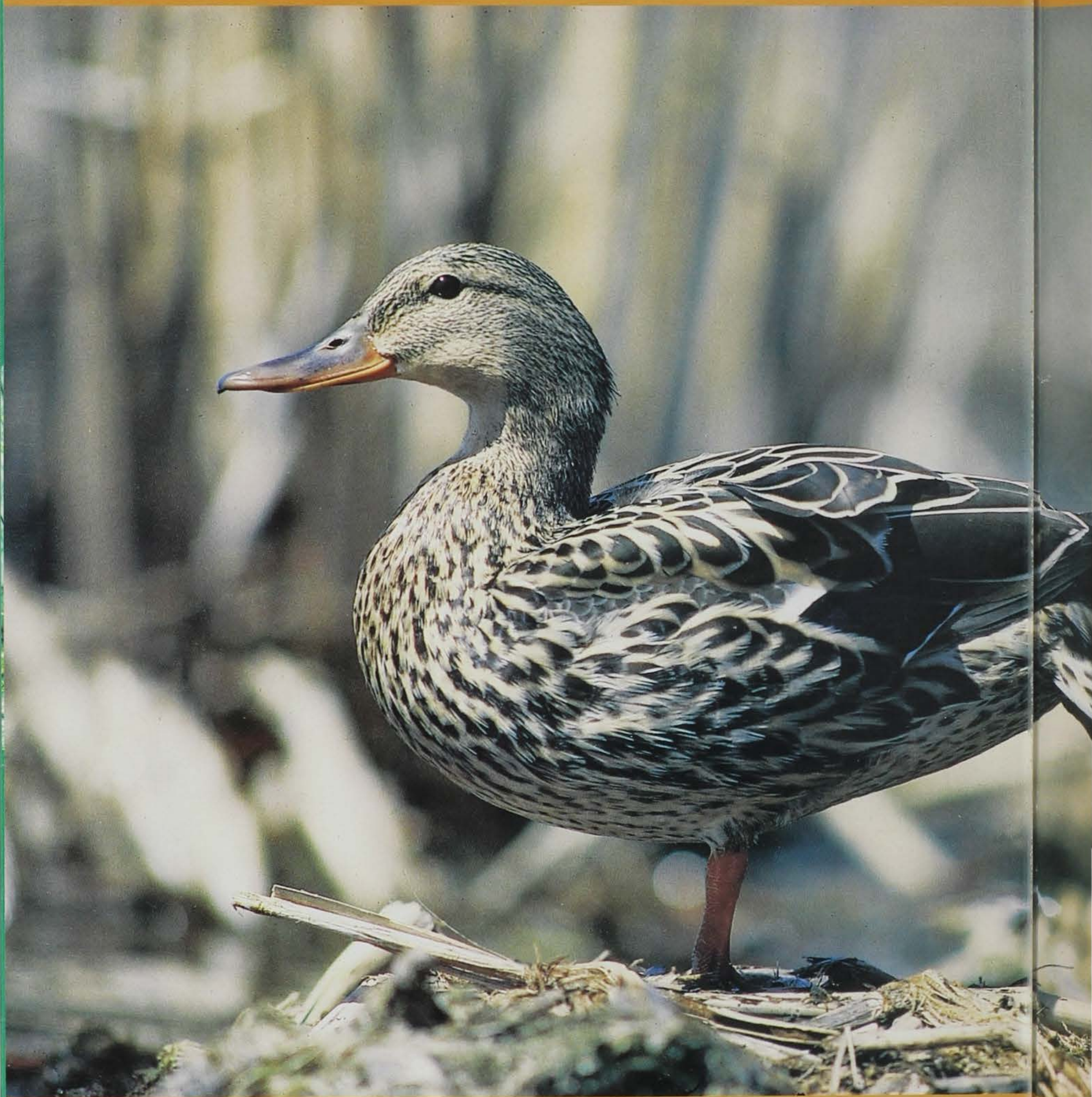
**Slowly creeping their way through an underwater network of submergent marsh plants and cattail roots, the tiny larvae carefully stalk, catch and devour virtually anything they are strong enough to hold. Growth rates are phenomenal. By mid-summer the larvae, called naiads, measure 2-1/2 inches and are fully capable of subduing creatures up to the size of tadpoles and small fish.**





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# North Iowa Research Project Looks at Mallard Success

Article and photos by Lowell Washburn

An intensive, three-year study aimed at gauging the nesting success of mallard ducks in northern Iowa has been launched by scientists with the Iowa Department of Natural Resources, Iowa State University, and the U.S. Fish and Wildlife Service.

What researchers ultimately hope to discover is why some hen mallards are more successful than others at adapting to habitat change on intensively farmed landscapes.

According to Guy Zenner, DNR waterfowl biologist and mallard project coordinator, one of the study's central objectives is to determine which types of grassland habitats are most frequently selected by mallards for nesting. The project will then



Wildlife researcher, Angela Schleicher, bands a drake mallard captured near Crystal Lake. The duck is part of an ongoing study aimed at evaluating the success of nesting mallards.





In order to obtain ducks for study, biologists place cage traps within the territories of nesting mallards. A tame duck serves as bait—and as wild mallards move in to defend their home turf, they become trapped inside the wire enclosures.



evaluate nesting success from each of the various habitat types.

"One of the main things we're going to be looking at is how many hen mallards are being killed by predators while attempting to nest in Iowa," said Zenner.

"At this point, no one really knows what is needed to reach a desirable threshold of production for grassland birds nesting on heavily farmed habitats," said Zenner.

"Northern Iowa represents the ideal location to gather the type of information we're looking for. Here, we have a good variety of habitat types set aside by things like the Conservation Reserve Program, the Wetlands Reserve Program and the Prairie Pothole Joint Venture," he added.

Mallards were selected for this project because they are widespread and adaptable. "They are also the species that most accurately reflects the nesting success of other grassland-

nesting birds. If mallards are doing well — or poorly — then it's safe to assume that the same thing is happening to other prairie nesting ducks such as blue-winged teal, gadwalls and northern pintails," said Zenner.

In order to obtain ducks for study, biologists place cage traps within the territories of nesting mallards. A tame duck serves as bait — and as wild mallards move in to defend their home turf, they become trapped inside the wire enclosures.

Whenever a female is captured, the prospective study bird is rushed to project headquarters. After the bird has been anesthetized, a powerful radio transmitter is surgically implanted directly into the duck's body cavity. The procedure lasts about 20 minutes. After a brief recovery the hen is returned to the trap site and released to join her mate. As the bird continues

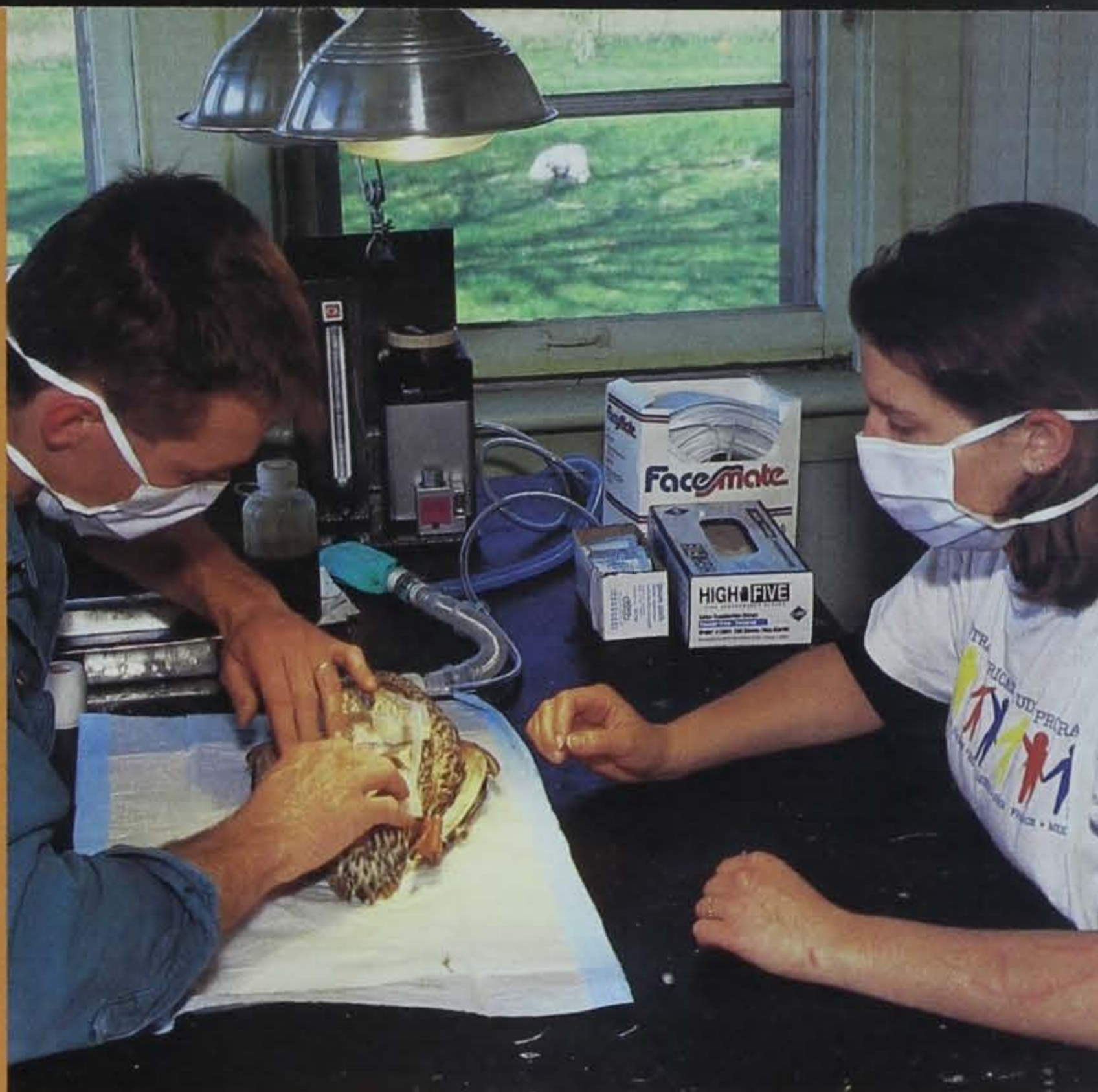


A radio transmitter is used to monitor nesting hen mallards.

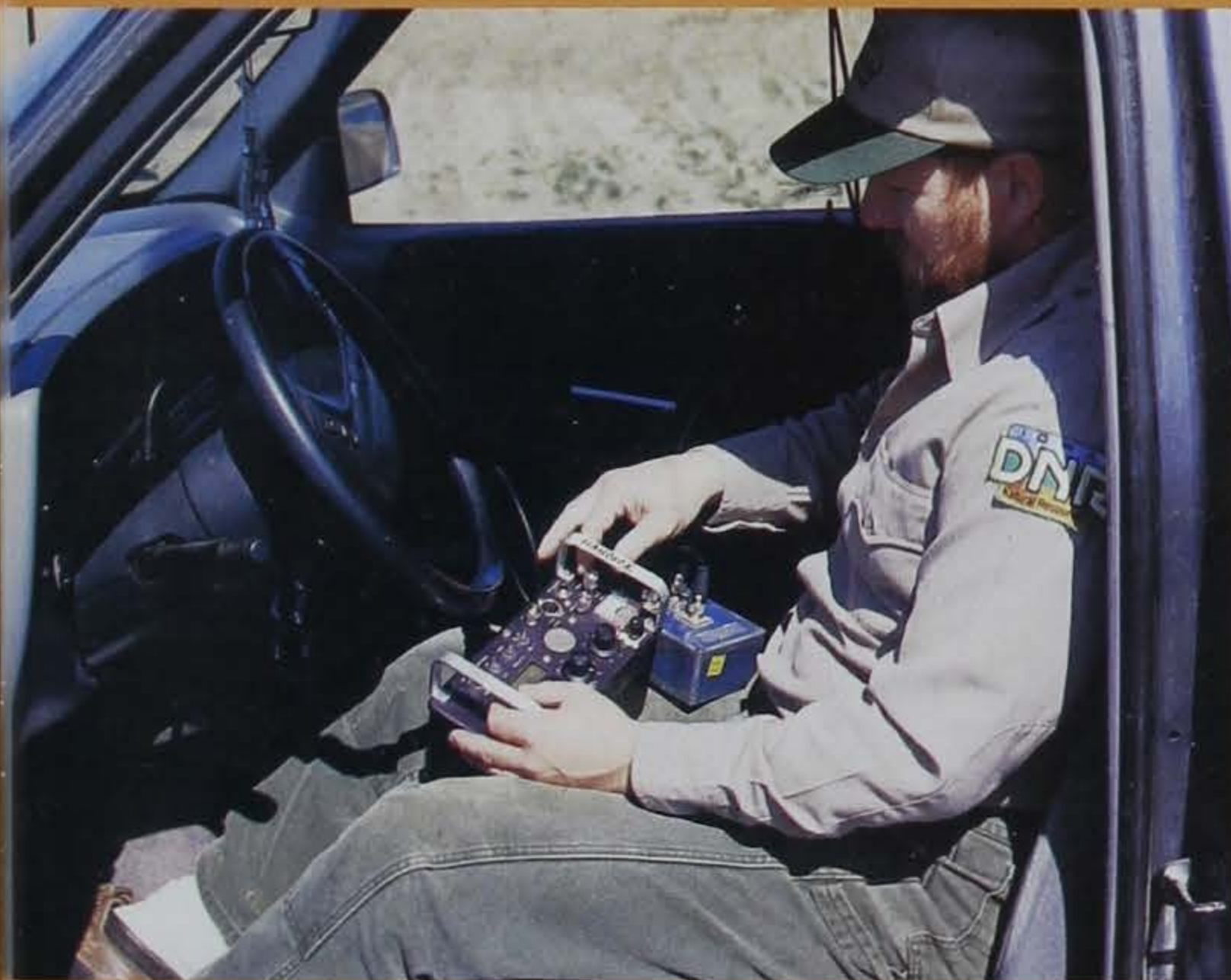


her annual nesting cycle, the radio transmitter emits a silent signal that allows biologists to monitor the bird's success, or failure, to produce a brood of ducklings. During the remainder of this year's breeding season, researchers hope to determine the nesting fates of at least 50 hen mallards.

"Of course, Iowa is not the only heavily farmed area of the prairie pothole region," said Zenner. "The things we learn about mallard breeding success in northern Iowa can ultimately be used to benefit waterfowl production in areas like southern Minnesota, South Dakota and North Dakota."



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"On the Air" —Al Hancock, DNR wildlife technician, monitors a hen mallard at Gladfelter Marsh near Crystal Lake.



# A Fish for All Seasons

by Bob Benedict

**B**luegill fishing in the Iowa Great Lakes region in northwest Iowa can be fantastic. So it follows that many anglers would target bluegills, or does it? Information from creel surveys shows only about three percent of Iowa Great Lake anglers target these colorful, hard fighting, fine eating sunfish. However, more bluegills are caught than other popular fish. This is especially true on East and West Okoboji lakes where, in each case, bluegills have been the most commonly caught fish for three of the last ten years. Spirit Lake, where less than one percent of anglers surveyed are targeting bluegills, may have the most underfished population of these feisty panfish. There is opportunity here for more people to have more fishing success and delicious dinners by fishing for bluegills.

Still not convinced? There are other reasons you might wish to fish for bluegills in these natural lakes. Besides being abundant, these fish can

be caught nearly year 'round and there's no length limit, bag limit or season on bluegills. They can be caught using a variety of equipment from spinning gear to fly fishing gear to cane poles. And, as bluegills go, they are large. The average size bluegill creeled over the last ten years is about eight inches long and just under half a pound. Nine-inch fish are fairly common and 10- to 11-inch fish weighing more than a pound are present in each of the lakes. Remember, a bluegill of one pound or more qualifies for an Iowa Big Fish Award. If you think you would like to get more out of this angling opportunity, read on for tips on tackle and how, when and where to find and catch big bluegills in the Iowa Great Lakes.

When it comes to tackle, think small and you probably will catch more bluegills. Small diameter line, bobbers, split shot, hooks, lures, flies, poppers and bait will allow you to catch the most aggressive fish in the school and

more. How small is small? For line, two- to four-pound test clear monofilament lines lessen the chance the fish will see the line and shy away. I use two-pound small diameter line for very clear water and four-pound line when the water has a little color in it. Small bobbers, 3/4-inch diameter and smaller, make it less likely fish will feel enough resistance to drop the bait before you can set the hook. Regardless of what bait you choose, hook sizes of 10, 12 or 14 make it easier for bluegills to suck the whole bait in so fewer bites are missed. Jigs, teardrops, spinners, wet and dry flies, poppers and sponge-rubber spiders or ants are all good lures at these sizes. Small baits such as silver wigglers, waxworms, earthworms, baby nightcrawlers, crayfish and leeches are appropriate.

You've got to "find 'em in order to catch 'em." Which tackle to use changes as bluegills move and use different habitats during the seasons. Water temperature, food availability, underwater structure and spawning habitat choice all determine where the most bluegills will be in these big lakes at any time. Time of year determines where you "find 'em" and which are the best ways to "catch 'em." Let's go through a year with the bluegills to find out when, where and how to get them.

## Spring

In early spring, soon after the ice leaves the lakes, bluegills move to the warmest water they can find. This is generally shallow water (one to three feet) with wind protection such as canals, covers and small shallow bays. On warm sunny days they can be located by looking for them with polarized sunglasses as they will suspend in the warm upper layer of water. On cooler

This pounder bluegill was caught in Emerson Bay. Large bluegills from 10 to 11 inches in length are present in each of the Iowa Great Lakes.

Cindy Martens





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Ed Thelen

When choosing tackle, smaller is better. A variety of small tackle can be used to catch bluegills. Aggressive fish can be caught using small diameter line, bobbers, split shot, hooks, lure, flies, poppers and bait. A good choice for line is two- to four-pound test clear monofilament. Smaller hook sizes of 10, 12 or 14 are easier for bluegills to take into their mouths allowing the angler to get more bites.

days, they will move to the nearest underwater structure in three to four feet of water and be less active until warming conditions occur again. Most bluegills are caught this time of year on teardrops tipped with wigglers, waxworms or earthworms fished under a small bobber in places like the canals off West Okoboji, the north end of East Okoboji, and the grade lagoon at the north end of Spirit Lake. All of these can be fished from shore or by boat. Depending upon the spring, this period may be from late March to early May. The fish are most active mid- to late afternoon.

In mid-spring, the water warms through the 50s into the low 60s and bluegills are in the pre-spawn mode. They are actively feeding and can be found in relatively shallow water (two to six feet) usually close to structures like trees, boat hoists, docks and bulrushes near spawning areas. Fishing with a jig or single-hook spinner tipped with an earthworm or part of a nightcrawler under a bobber is effective, as are baby leeches on a plain hook with a BB size split shot for weight. Fly fishermen can catch bluegills using flies and small poppers. Fish can be caught from shore or boat, but a boat allows you to move easily from structure to structure until fish are found. Good places to check include docks in Emerson and Smith's bays on West Okoboji, docks and trees in the water on East Okoboji from Parks Marina north, and along the bulrushes in Anglers Bay on Spirit Lake. Mid-morning to evening can be productive

throughout May for what could be the very best bluegill fishing of the year when it comes to size and the number of fish caught.

Late May through mid- to late June is bluegill-spawning time in the Iowa Great Lakes. Male bluegills move to spawning areas where they fan out round depressions for nests or beds in sand or sand-and-gravel bottoms in one to four feet of water. They defend these beds until females spawn, the eggs hatch and the fry are free swimming. Female bluegills wait nearby until they are ready to spawn, come into the spawning bed, spawn and leave. Early in the spawning period, both males and females can be easily caught using the same tackle used in mid-spring. The males are caught right off the beds and females in slightly deeper water just off the beds. Once eggs, or fry, are in the nest, male bluegills aggressively defend and clean the nest but feed very little. Therefore, catching them can be a little tough. Catching male bluegills guarding eggs, or fry, has little effect on the overall population because bluegills are tremendously prolific. For these nest-

guarding males, try using a jig or fly that imitates an aquatic insect or small crayfish and drop the bait right in a bed being guarded. The fish will suck in this invader and attempt to blow it back out of the nest quickly. Hopefully, this will give you just enough time to set the hook. Spawning bluegills are best located by boat, but shore fishing and wading is possible. Look for bluegills by wearing polarized sunglasses to spot the beds in shallow water near shore. Fish can be caught any time during the day in places like Anglers Bay on Spirit Lake, the south end of East Okoboji and Emerson Bay on West Okoboji.

### Summer

The post-spawn period in early summer finds the bluegills moving from the spawning areas toward deeper water habitats they will occupy from mid-summer until early fall. They are feeding aggressively and can be caught if you can find them. Generally, they will be around some type of structure in



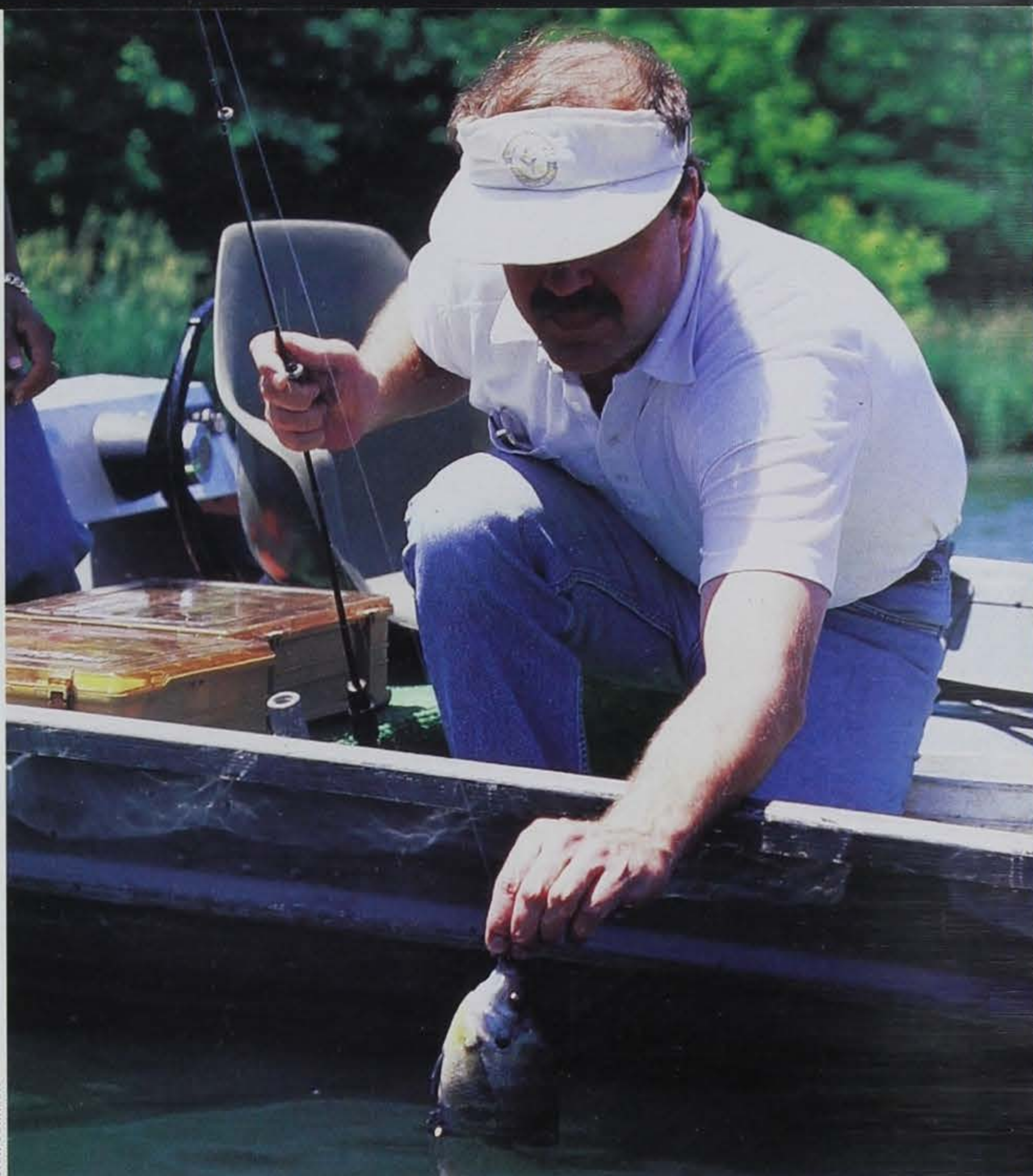


6 to 10 feet of water. Good places to look are weed beds with scattered openings and shady areas under docks and boat hoists. The fishing trestle between West and East Okoboji is a good spot early in the day for shore anglers. Boat anglers have many more choices as they can fish around docks that stick out into deeper water on any of the lakes or drift over weed beds to find fish. Small jigs tipped with an earthworm, a plain hook with earthworm or baby crayfish fished straight down or under a slip bobber work well for casting and prospecting around docks. A small spinner harness with half a nightcrawler or an earthworm drifted or trolled over and between weed clumps is a good way to catch early summer bluegills scattered in the weed beds. Docks in Miller's Bay on West Okoboji, from the Parks Marina to Little Stony Point area on East Okoboji, and the weed beds from Little Stony Point to Reeds Run on Spirit Lake are the best bets. Early to mid-morning and late afternoon to evening are the best times.

By mid-July, most adult bluegills have found their way to a deeper water habitat from 9 to 25 feet deep. Because they tend to stay in their summer habitat of rock piles, weed/rock combinations and deep weed lines until about mid-September, finding fish once means you can find them again. Finding bluegills now is much easier than when they are moving during the early summer post-spawn period. A topographic map, available at most bait shops and the Spirit Lake Fish Hatchery, is very helpful in locating rock piles and reefs. Underwater weeds are best located with the aid of a depth finder. West Okoboji has too many good spots to list them all, but the reef at the mouth of Emerson Bay, rock piles near Gull Point, the reef down the middle of Miller's Bay, and rock piles in Haywards Bay

Ken Formanek

Ron Johnson



are all worth checking out. On East Okoboji, try the rock piles and weed lines from the Parks Marina to Little Stony Point area. On Spirit Lake, good rock piles and weed/rock combinations that produce are located near Reeds Run, Little Stony Point, Cottonwood Point, Little Spirit Inlet area, Bakers Point and Buffalo Run.

In the heat of the summer, early morning is by far the best time of day, but by fishing the deeper habitat on West Okoboji you can catch fish throughout the day. Anchoring and fishing straight down just off the bottom with a jig and worm, small leech or small crayfish are the usual methods.

#### Fall

In early to mid-fall, when the water temperatures are in the 60s and upper

50s, bluegills move shallower again. Areas near inflows from shallow lakes, sloughs or canals tend to concentrate fish. A teardrop or jig tipped with a worm or waxworm fished under a bobber works well. Both boat and shore anglers can be successful. Mid-afternoon to dusk, when water temperatures are highest, provides the fastest fishing. On Spirit Lake, the Grade, Little Spirit and Buffalo Run inlet areas are good. East Okoboji's north end near the hatchery or the Garlock Slough inlet and West Okoboji's Spencer Beach or Miller's Bay canal entrance areas are consistent producers.

In late fall, as the water cools toward ice-up, the bluegills move to a deeper water wintering habitat. They can be found in 6 to 15 feet of water in weed beds. As the weeds die back and settle to the lake bottom, the bluegills





Ron Johnson

**"The average size bluegill creel over the last ten years is about eight inches long and just under half a pound. Nine-inch fish are fairly common and 10- to 11-inch fish weighing more than a pound are present in each of the lakes."**

will forage over the matted weeds and use the last standing weeds for cover. Finding weeds that are still standing with a depth finder will usually find you fish at this time of year. Anchor and fish straight down with teardrops or tiny jigs tipped with a waxworm or wigglers for best results. Afternoons on warmer, sunnier days are the best. The North Grade lagoon, Angler's Bay on Spirit Lake, Emerson Bay, Miller's Bay, Smith's Bay and the north end of West Okoboji are worth trying for the last open water bluegills of the year.

### Winter

Ice fishing for bluegills in the Iowa Great Lakes begins in late November or December soon after the ice forms. Fishing the same areas mentioned for late fall can be very productive. Also, early winter sometimes finds bluegills in the canals off West Okoboji. Because the water is often crystal clear, one to two-pound line is recommended. Bait is usually a teardrop or tiny jig tipped with a waxworm. Bluegills often bite extremely lightly during the winter but large numbers of fish are taken by those best able to detect bites. I recommend fishing from a shelter so you can watch the fish take the bait. Besides being more fun than bobber watching, you'll miss less bites because you can see whether or not the fish has the hook in its mouth or just the waxworm. If you don't have a shelter, use a spring bobber or the tiniest float that will hold your bait off the bottom. Mornings and late afternoons are the best times.

If you get a chance to fish the Iowa Great Lakes at any time of year, give fishing for bluegills a try. Good numbers of quality-size fish are there including some pounders. Bluegills are an underutilized fishery that you can take advantage of by using these tips on how, when, and where to catch more of them. Have fun fishing.

*Bob Benedict is a fisheries technician with the department in Spirit Lake.*



# Water *f*orms

by Jean Cutler Prior

With the puddling of raindrops, water gathers for its innumerable journeys throughout Iowa. As it moves along, water may become part of a kettlehole, a marsh, a farm pond, a river, a flood, an aquifer, a fen, a cave, a spring or a waterfall. In all of its aspects, water adds fluid beauty to the landscape. Both above and below ground, water is an ever-present geologic force as well as a vital natural resource, and the focus of environmental protection and natural resource issues.

Thousands of years ago, water in its crystalline form of ice carried the raw building materials of much of Iowa's present landscape into the state within the grasp of massive glaciers. In turn, the melting of these glaciers laid the course of most rivers seen on today's maps of Iowa. Even the state's bedrock foundation, whose picturesque ledges and bluffs outcrop along some of these river valleys, originated as layers of sediment settling out of water on ancient sea floors, along coastlines, and in stream channels millions of years ago.

Iowa's past geological environments supplied the earth materials that contain our present surface and groundwater resources. These materials shape the forms that water takes on the land surface, and they also determine how fast and how far water moves underground and where it can be tapped for wells. They affect groundwater's natural quality, as well as its vulnerability to contamination introduced from the land surface.

**Inset: Water** circulates through our environment in a process known as the *hydrologic cycle*. Precipitation from clouds falls to the ground where it may be taken up by plant roots, flow as surface runoff to streams, or slowly percolate deeper into the earth to become groundwater. Water returns as vapor to the atmosphere primarily by evaporation from lakes and streams, and by plant transpiration.



Photograph by Service, The University of Iowa

*Jean Cutler Prior is a geologist with the department's Geological Survey Bureau in Iowa City.*

*Reprinted from Iowa Geology 1997*





This shallow *marsh*, with its lush aquatic vegetation, lies along the Iowa River floodplain at Otter Creek Marsh State Wildlife Refuge in Tama County. The sluggish backwaters persist in broadly curved lowland sloughs that were scoured by earlier meander channels of the river. They tend to fill slowly with silt and clay, and are periodically disturbed by returning floodwaters.



The water in these poorly drained *kettleholes* accumulates from rainfall and snowmelt as well as groundwater seepage. The wetland features are a legacy of melting glacial ice 13,000 to 11,000 years ago. Freda Haffner Kettlehole State Preserve, Dickinson County. (Right) Bjorkboda Marsh, Hamilton County.

Roger A. Hill



The consistent flow of groundwater from this column of concrete and steel at Osage Spring Municipal Park (Mitchell County), resembles a *flowing artesian well*. The site has yielded a year-round water supply for wildlife, livestock, and people for at least 100 years. Upwelling of groundwater can occur where a water source, confined under the pressure by overlying impermeable rock, finds a natural opening to the land surface or is tapped by a drilled well. This groundwater source contains noticeable amounts of dissolved iron (note rust-colored buildup on the column) and hydrogen-sulfide gas.

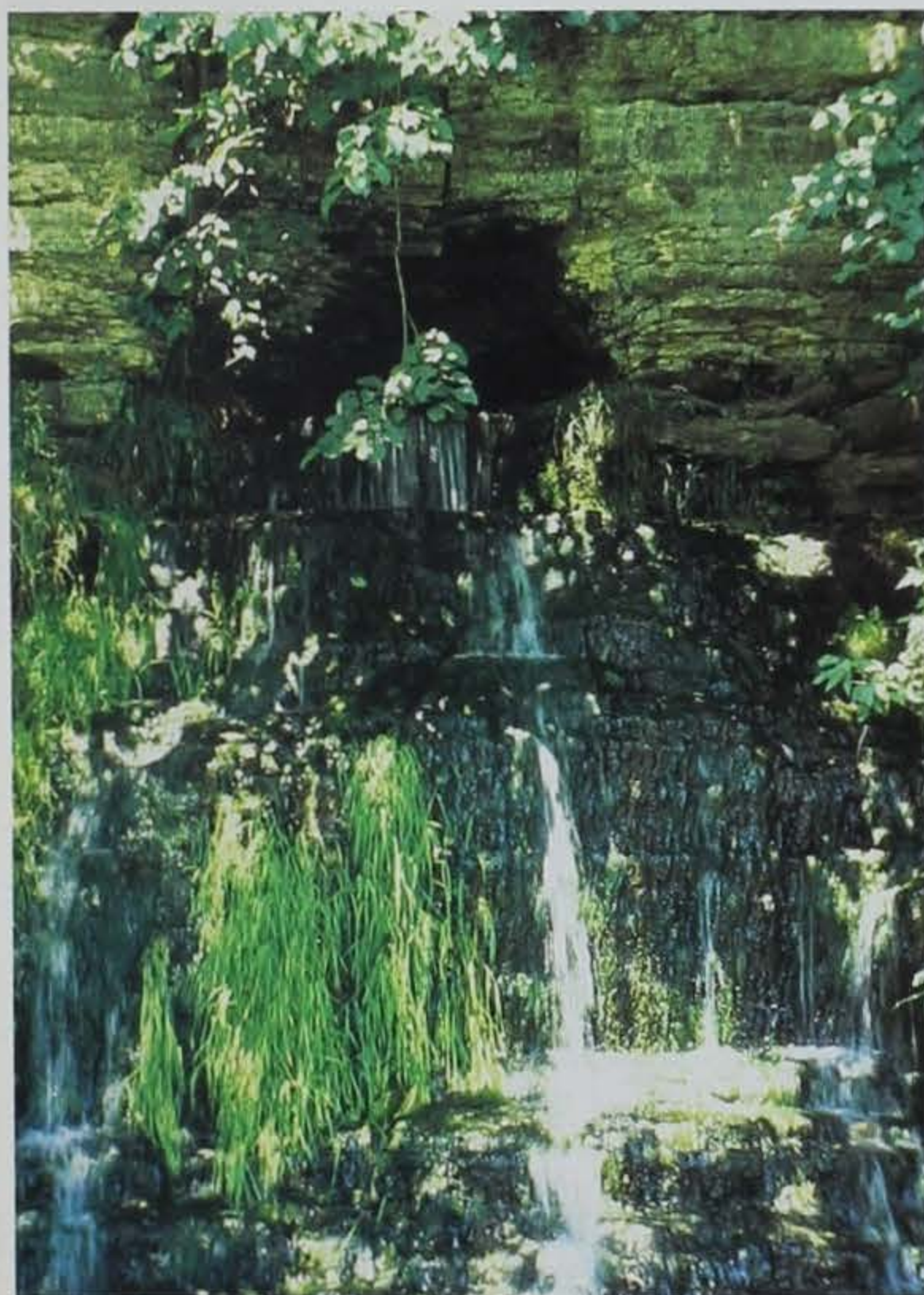


Douglas A. Hill



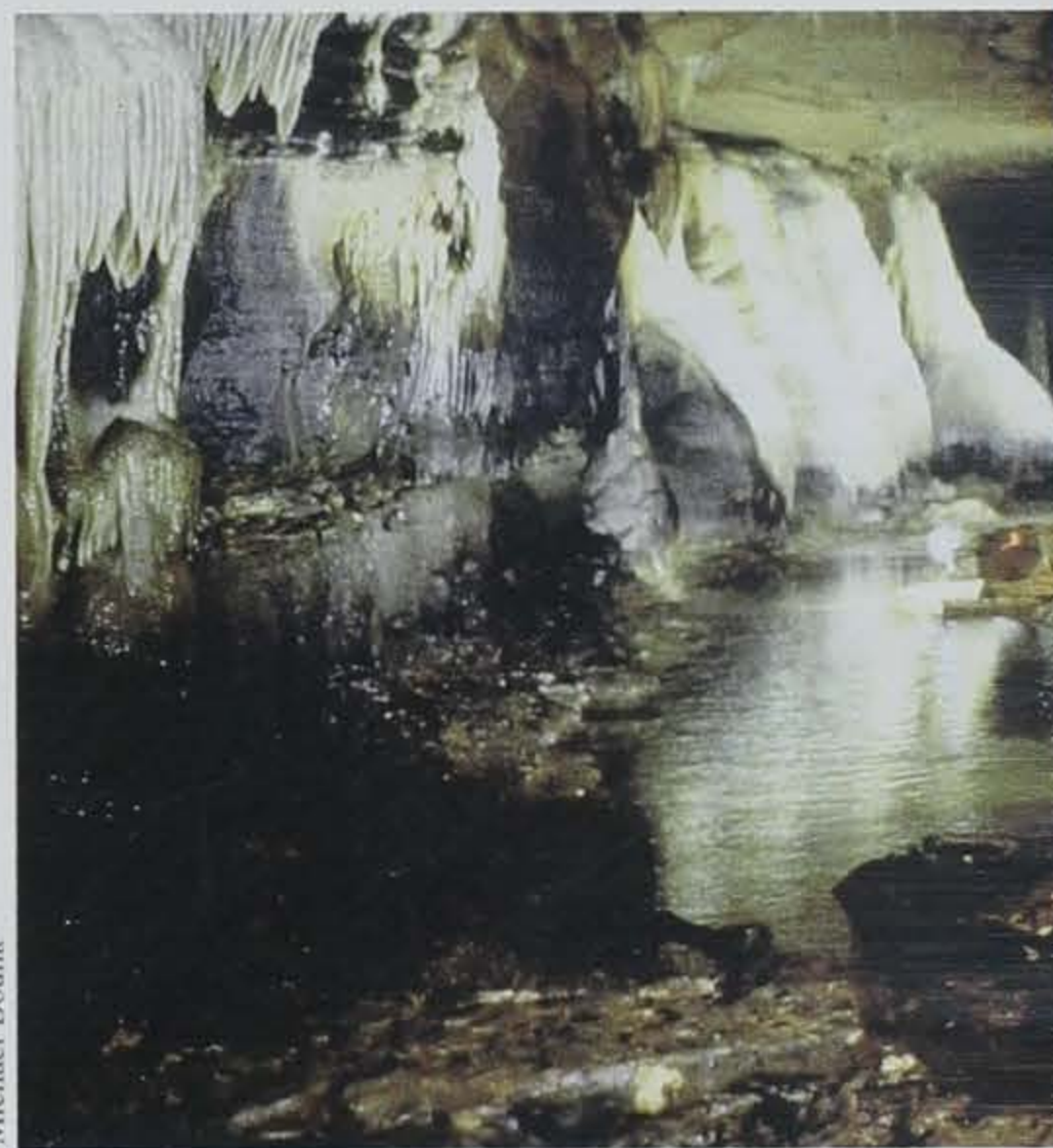
This historic milldam was constructed on the Winnebago River at Fertile, in Worth County, to put the river's flow to work. The dam raised the river level so the force of falling water could be used to turn wheels and stones within the mill to grind grain into flour.

Lowell Washburn



*Springs* occur where groundwater flows from rock or soil material to the land surface. This spring tumbles from crevice openings in dolomite near the entrance to Spook Cave in Clayton County. In northeastern Iowa, springs often flow near the base of steep-sided valleys, where water moving downward through permeable limestone or dolomite encounters less-permeable shale and moves laterally, finding an opening to the land surface along a valley wall.

Carol Thompson



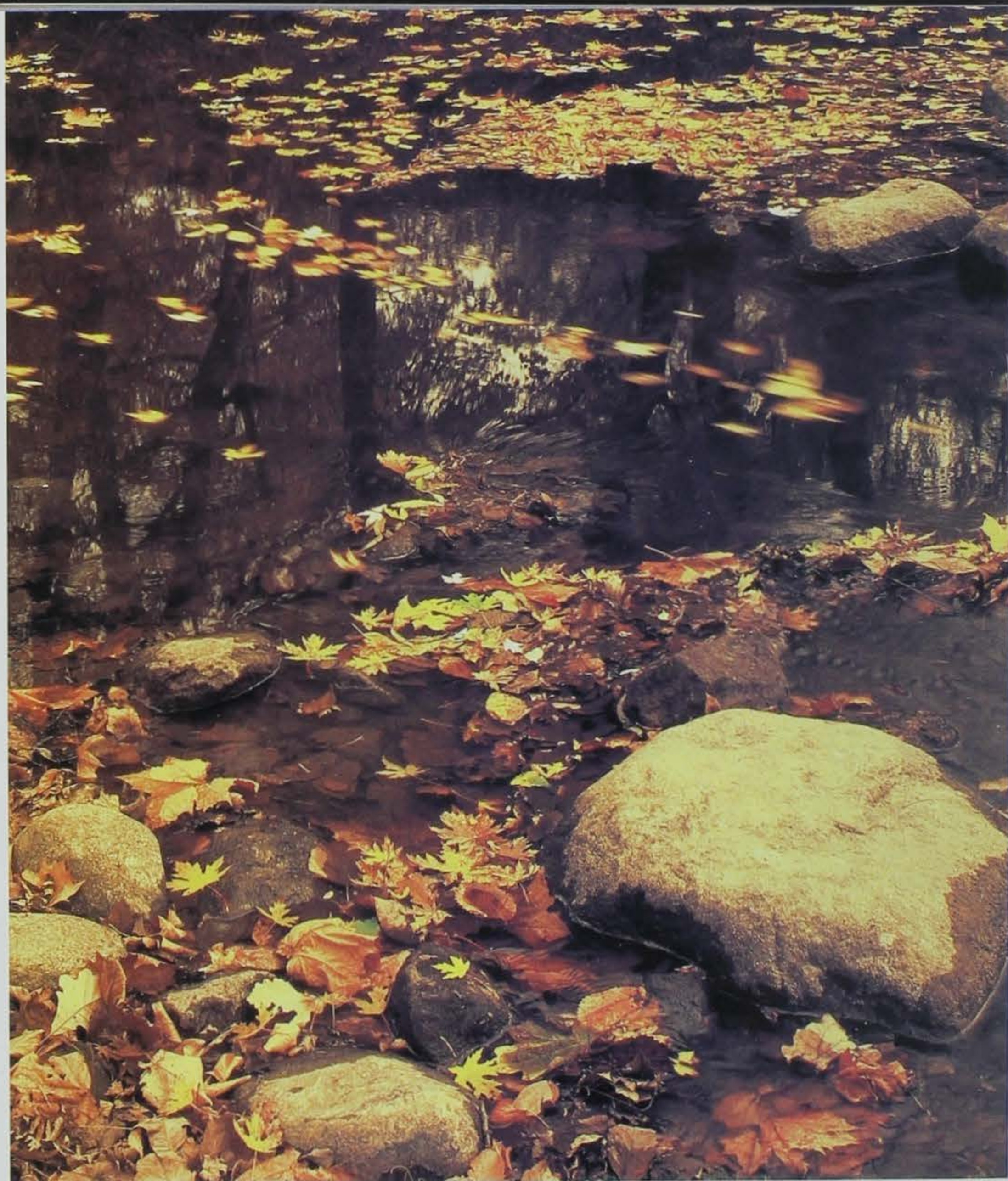
Michael Bounk

*Caverns* form as groundwater moves through subterranean crevices in limestone over long periods of geologic time. In this scenic chamber, water seeps in along the ceiling and slowly adds more calcium carbonate (lime) to the glistening formations that decorate the cavern walls. Groundwater continues to flow by gravity along the cavern floor and down through other openings in the limestone formation. Cold Water Cave, Winneshiek County.



During low-flow conditions along a river channel, it is possible to see the *sediments carried by water*.

These rounded cobbles and boulders are part of the load that is moved during high flood flows along the Skunk River in Story County. Smaller grains of sand, silt and clay can travel farther and gradually settle as the flow volume decreases. The capacity of flowing water to erode and deposit earth materials makes it the most effective geological process shaping the Iowa landscape today.



Robert A. Hill

A *flood* occurs when a river overflows its banks and spreads out to cover land not normally under water. When these Cedar River floodwaters over Seminole Valley Park in Cedar Rapids recede, cleanup crews will find deposits of sand and silt as well as scoured out areas.



Debra M. Scholten/USGS





Roger A. Hill

A berm built across a hillslope captures the runoff from rainfall, storing it for livestock use. *Farm ponds* are particularly abundant in the southern half of Iowa where the rolling topography favors their construction, and the lack of abundant groundwater resources makes these impoundments a valuable water supply. Story County.



Roger A. Hill



Photographic Services, The University of Iowa

The *reservoir* of water in Lake Macbride (above) is separated from the Iowa River (left) by a dam near the center of this aerial view. Shown during flood, the muddy Iowa River is moving a greater load of suspended silt and clay compared to the clearer water in Lake Macbride. This reflects the greater land area draining to the Iowa River (its watershed) and the effects of runoff from cultivated land.

A *waterfall* is an abrupt step down along a stream's channel, usually caused as the water drops vertically over an outcropping ledge of resistant bedrock onto softer, more easily eroded rock. A series of five waterfalls breaks the flow of this Story County brook before it reaches the Skunk River.





A *fen* is a spongy mound of peat fed by mineralized groundwater and supporting a unique wetland flora. In Iowa, these "mound springs" are typically found on hillsides. Note the rust color as groundwater flow comes in contact with the air, causing dissolved iron to oxidize. Silver Lake Fen State Preserve, Dickinson County.

Carol Thompson

A *river* is a volume of water flowing along a well-defined channel toward some larger (and lower) body of water. Also, in a river channel the local groundwater table is visible as surface water. Springs and seeps are significant contributors to northeast Iowa rivers. Along the Upper Iowa River in Winneshiek County, bluffs of dolomite overlook the channel and provide scenic views around each bend.



Greg Ludwigson





This victorian-style home, built in 1995 in Iowa City, was the first in Iowa to receive a five-star rating on the Home Energy Rating System. The home features energy-efficient windows and insulation.

# Buy a house, Save a buck

► energy efficient mortgages and the home energy rating system

Article by Tami Foster and Kara Weatherwax  
Photos by Ken Formanek

**H**omebuyers can now find out the energy efficiency of a home prior to purchase as a result of a home energy rating. The Home Energy Rating System (HERS) is a program developed by a coalition of housing industry professionals, working in partnership with the Iowa DNR and Energy Rated Homes of Iowa. The program's purpose is to increase residential energy efficiency and provide more affordable housing.

## ► What is an energy rating?

A home energy rating is a measure of a new or existing home's overall energy efficiency. Data is collected on the performance of various systems





within the house, such as heating and cooling systems. The quantity and quality of doors, windows and insulation are taken into account. This information is then computer-analyzed to determine how effectively the house provides comfort and affordability to the homeowner.

A home energy rating may be requested by the homeowner, homebuyer, builder, real estate agent, or lender and results will be received within a week.

Part of the rating system includes a blower door test to determine air leakage. The blower door depressurizes a house, allowing the home energy rater to pinpoint areas of air leakage and measure the amount.

The homeowner can actually feel where heat loss is occurring through leaks and cracks in the home's structure.

Each home is given a rating from one to five stars with five being the

most energy efficient.

For ratings lower than four stars, a list of the most cost-effective improvements needed to bring a home's energy efficiency up to a four-star level is provided, along with a cost estimate of the installation of these improvements.

### ► How does HERS make housing more affordable?

Rising home costs can make it difficult for many Iowans to purchase a new home.

Energy costs are the highest operating cost of owning a home. A HERS rating can help make a home more affordable by:

- including recommendations to reduce utility bills through energy efficiency improvements;
- increasing a home's resale value;
- expanding a family's range of home ownership choices; and
- qualifying more families for energy efficient mortgages.

### ► How can an energy rating help me buy a home?

An energy rating allows homebuyers to obtain an "energy efficient mortgage" — an innovative financing tool that rewards energy efficiency and helps the prospective homebuyer qualify more easily for a mortgage.

To qualify for an energy efficient mortgage, the home must have a rating of at least four stars. This enables the homebuyer to qualify for a larger mortgage than would otherwise be allowed, based on family income.

Pay-

ing less for energy costs means the homebuyer will have more money available for a higher home mortgage.

If the home receives fewer than four stars, the cost for implementing the energy efficiency improvements can be financed through an energy *improvement* mortgage, benefiting the homebuyer in two ways: 1) The improvements are usually tax deductible because they are included in the mortgage; and 2) The homebuyer's debt-to-income ratio is adjusted for the decreased energy costs, enabling the homebuyer to qualify for a higher mortgage.





### ► Need more information?

The cost of a home energy rating is about \$250 and many utility companies offer rebates for the ratings.

To learn more about energy efficient mortgages and the Home Energy Rating System, contact Claude Papesch, Director of Energy Rated Homes of Iowa at (319) 439-5416, or Mid Iowa Community Action, Inc., 1001 South 18th Avenue, Marshalltown, Iowa 50158; phone (515) 752-7162 ext. 125.

*Tami Foster is a program planner with the department's energy bureau in Des Moines. Kara Weatherwax is an administrative intern with the energy bureau in Des Moines.*



Basement insulation (above left) is an important component for increasing residential energy efficiency. Iowa's first five-star home on the Home Energy Rating System is graced with a wooden spiral staircase (above) showing that energy efficiency and beauty go hand in hand.

## Glidden home receives highest energy rating

John Johnston, member services director at Glidden Rural Electric Cooperative (REC), may own the most energy-efficient home in Iowa.

His home is the first to participate in Corn Belt Power Cooperative's Model Heat Pump Home Program. Based in Humboldt, Corn Belt is Glidden REC's energy supplier. Johnston's home recorded a 96.9 out of a perfect 100 score on the state's Home Energy Rating System (HERS), surpassing the previous highest score of 95.5.

Johnston's energy bill for heating and cooling the 2,240-square-foot home from October 1996 to October 1997 was \$280, based on an interruptible rate of 3.5 cents per kilowatt-hour. During this period the Glidden area experienced normal seasonal temperatures.

A four-ton, closed-loop electric ground-source heat pump provides heating and cooling. The heat pump system is backed up by an electric furnace; but, to date, it hasn't been used.

The system qualifies for Corn Belt's ground-source heat pump incentive program. Qualifying customers can receive a \$300-per-ton rebate on the ground source heat pump.

The home is occupied by Johnston and his wife, Chris, and they keep the temperature set between 72 and 73 degrees year-round. An air infiltration rate of .053 natural air exchange per hour compares favorably to a 1.0 average air exchange per hour for an older home.

The single-story home is part of a six-home development on the north edge of Glidden. The REC, Corn Belt Power Cooperative, and the City of Glidden developed the lots in the subdivision. All the homes are occupied and have installed ground-source heat pumps.

The Johnston home faces south and has plenty of window area for maximum solar gain. It is constructed of wood frame with precast walls and covered with vinyl siding. Insulation with an R-factor of 24 is blown into the walls. The ceiling insulation is R-38.

For shading, a two-foot exterior roof overhang surrounds the home. The home has two bathrooms with individual thermostats. The heat exchanger removes stale air from the bathrooms, recovers the heat, and brings it back into the house with fresh air.

Corn Belt's requirement for participation in the Model Heat Pump program is that the homeowner builds an all-electric home with a ground-source heat pump and air heat exchanger. The home must meet Model Energy Code requirements and score a HERS rating of at least 85.

*Reprinted with permission from Energy Services Bulletin, June 1998 issue.*







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# Northern Pike in Northern Natural Lakes

If you want to get a kid hooked on fishing, have him catch a northern pike. These voracious predators with their razor sharp teeth will leave a lifelong impression with a young angler. Pike, known for their vicious strike and lightning quick runs, will even tail dance like a bass on occasion. It is no wonder that to a youthful angler these fish represent the closest thing to an "Iowa alligator."

I can vividly remember my first pike. As a ten-year-old, my brother and I would wade the undeveloped shorelines of a small natural lake in Dickinson County. At this stage in our fishing careers we had successfully caught perch, bluegills and crappie, but catching a pike was something only Dad was able to do. It was fishing's version of "big game hunting." Oh we had hooked pike with our primitive equipment, but never seemed to be able to land the duck-billed monsters. The light line that worked so well for panfish just didn't seem to hold up against these toothy critters.

On one particular spring day, we had a plan. Instead of catching crappies along the brush-filled shoreline, we'd go big game hunting for the elusive pike. We went through Dad's tackle box and picked out the largest spoon we could find. Unbeknownst to me at the time, I had selected one of the most deadly pike baits around — a Johnson silver minnow with pork rind attached. It didn't look like much to me, but if this fish eats small muskrats and ducklings it could surely eat this. We strapped on Dad's size 10 chest

waders and waddled our way into the "shark-infested waters."

We casted for a half hour without any success and realized throwing and retrieving these big baits was work. No wonder this type of fishing was reserved just for adults. We just about

hung it up when a vicious strike occurred right next to my feet. The water was clear and I could see the monster with the yellow spots on its side. I immediately knew this was the fish we were after. On this particular day, luck was with me because the drag



Fingerlings are harvested in mid-May to stock into natural lakes that require supplemental stockings. Over the past 10 years, 200,000 three-inch fingerling northern pike have been raised and stocked throughout northwest Iowa.

Article by Jim Wahl  
Photos by Lowell Washburn



was set perfectly. The pike peeled out 50 feet of line and I slowly worked the fish back in. After what seemed to be an hour-long struggle, I finally beached the pike with the help of my brother. We secured the fish to the chain stringer and I attached it to a loop on my waders. That fish pulled me all over the shoreline — what strength it possessed! When Dad got home from work I proudly showed him my catch. A present-day picture reveals it was only a 20-inch fish, but to me, at the time, it was a trophy.

That day was just the beginning of many, many more trips to that little natural lake. Occasionally a large fish (five to eight pounds) was caught, but most were merely “hammer-handles.” We didn’t care. To us, we were big game hunting, and more importantly we were hooked on fishing.

Northern pike are found throughout the upper two-thirds of the state. They are common in the upper reaches of large interior streams and also in the Mississippi River. As for lakes, they are most common in natural lakes located in northwest and north-central Iowa. Many of these lakes have self-sustaining populations supported by natural spawns, however some of these waters are supplemented with small fingerling stockings.

In 1987, the Hampton Fish & Game Club and personnel from the parks and fisheries bureaus of the Iowa DNR restored six earthen rearing ponds that had been unused for nearly two decades. The ponds, located at Beeds Lake State Park, had been previously used for culturing a variety of fishes. A need in northern Iowa for a more consistent supply of fingerling northern pike for stocking brought them out of retirement. Although the ponds are not ideal, they are drainable, and do provide an adequate environment to rear fingerling pike.

Typically, fry are stocked in the ponds in early April. The fry are hatched from eggs collected at Guttenberg Fish Hatchery located on

the Mississippi River. Prior to stocking, the ponds are fertilized with alfalfa meal to stimulate a zooplankton bloom. These small water fleas provide the food base that allows these fish to grow to a size of three inches within the first 40 days of their life. At this size, the young pike switch to a fish diet and become cannibalistic if not removed from the ponds. Fingerlings are harvested in mid-May to stock into natural lakes that require supplemental stockings. Over the past 10 years, more than 200,000 three-inch fingerling northern pike have been raised and stocked throughout northwest Iowa. Without the cooperation of local sportsmen and women, and DNR parks employees, these stockings would not be possible.

So the next time you catch a northern pike in the glacial lakes of northwest Iowa, take some time to think about its origin. It may have come from natural reproduction, or it may have been reared at the Beeds Lake ponds. Regardless of its origin, the satisfaction of catching an “Iowa

alligator” reigns true for young and old alike.

*Jim Wahl is a fisheries biologist for the department at the Clear Lake Fish and Wildlife Station.*

**Below is a list of northwest Iowa lakes frequently stocked with northern pike fingerlings:**

Little Wall Lake (Hamilton Co.)  
 Crystal Lake (Hancock Co.)  
 Silver Lake (Worth Co.)  
 Clear Lake (Cerro Gordo Co.)  
 Beeds Lake (Franklin Co.)  
 Lake Cornelia (Wright Co.)  
 North Twin Lake (Calhoun Co.)  
 Blue Lake (Monona Co.)  
 Brown’s Lake (Woodbury Co.)  
 Snyder Bend (Woodbury Co.)  
 Center Lake (Dickinson Co.)  
 Lost Island Lake (Palo Alto Co.)  
 Five Island Lake (Palo Alto Co.)  
 High Lake (Emmet Co.).



Bruce Ellison

**Northern pike are found throughout the upper two-thirds of the state. They are common in the upper reaches of large interior streams and also in the Mississippi river.**





In 1987, the Hampton Fish & Game Club and personnel from the parks and fisheries bureaus of the Iowa DNR restored six earthen rearing ponds located at Beeds Lake State Park (left). The ponds, idle for decades, had been previously used for culturing a variety of fishes.





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DNR Photo



# TROTTLINING

## IOWA'S RIVERS

*Whether it is on one of our border or interior rivers, or even a small creek, trotlining in Iowa streams can be exhilarating.*

by Dennis Weiss and Gene Jones

You get up before the crack of dawn. You launch your boat. A light mist rises from the water and glistens in the morning sun. You pull up to the first line and the stake starts to shake vigorously. More than half of the floats disappear as the boat approaches. What is making the stake shake and the floats bounce so violently? Is it a 10-pound channel cat or maybe a 20-pound flathead? Whether you are a beginner or veteran trotliner, it is always exciting pulling in the line, not knowing what will be on the next hook.

### Trotline Construction

A trotline consists of a heavy main line with droppers or "stagings" placed at equal intervals along the line. The dropper lines should be 12 to 15 inches in length and should have a barrel swivel attached at both ends. Avoid using monofilament because it is usually too stiff and does not have enough breaking strength. Instead, use braided nylon twine for the droppers of approximately 100-pound test. Thread barrel swivels (however many hooks you want on the trotline) onto a roll of heavy twine (200-pound test) that will serve as the main line. Leaving six to eight feet on the end, slide a swivel down the line and place a knot closely on each side of the swivel. Measure four to six feet (a personal choice, but keep distance consistent) and repeat the procedure until all the swivels have

been spaced and knots tied on both sides.

The next step involves tying a barrel swivel onto a 12- to 15-inch piece of the dropper line. Each barrel swivel on the main trotline will need a dropper line. Big-eyed stainless steel hooks (size 1 or 2) are preferred

because they stay sharp, don't rust and can be attached to a barrel swivel. You will need to slightly bend the eye of the hook open, slide it on the barrel swivel, and then squeeze the eye back together. By having a barrel swivel attached to the hook and another on the main line, you will have double swiveling action



DNR Photo

A monster flathead catfish taken on a trotline (left). Trotline box used to coil line and bait hooks.





Ron Johnson

which prevents fish from twisting or knotting the line. The last step in constructing your trotline will be to tie a dropper that has a swivel hook to each swivel on the main line.

Many Mississippi and Missouri river sport trotliners make four, 50-hook trotlines for their maximum 200-hook limit. You will need a box in which to coil the line. With multiple hooks on a trotline, it will be easier to bait the hooks and set the line. There

are many different shapes and sizes of trotline boxes. We prefer a 15-inch square box with plywood for the bottom and 1x4-inch pine for the sides. Use a thin bladed hand saw to cut grooves (about 1/8 inch deep) one inch apart all around the top of the box. The loose end of the trotline should be stuck into one of the slits and the rest of the line coiled into the box. Each dropper line should be placed into consecutive grooves with the

hooks hanging loose on the outside of the box.

### When and where to trotline

When you hear people talk about trotlining you think of catfish and summer. Channel catfish are the most common species sought and summer can be the most productive time of year. However, there are other seasons, as well as other

species, associated with trotlining. You can run trotlines in the spring, summer and fall. Shovelnose sturgeon, freshwater drum or flathead catfish are other species you can catch on trotlines.

The spring season is often overlooked by many anglers. This time of year can produce catches of bigger catfish, 5 to 10 pounds. The catfish have been fairly dormant over the winter months and are ready to feed as spring approaches. When the ice goes out, catfish begin feeding on dead fish, usually gizzard shad, which are not very tolerant of Iowa's harsh winters. This knowledge should be used to your advantage when using cut baits or worms, because they are the best choice of bait in the spring. A variety of other baits are good during the summer and fall seasons including leeches, crayfish, frogs, grasshoppers, minnows, green sunfish, chubs and blood. When baiting, keep in mind you want to use small, bite-size pieces. A fourth of a nightcrawler, half of a leech, or a 3/4-inch square of





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DNR Photo

"No matter what time of year you decide to trotline, the best locations are usually shallow-water areas like a stump field or sand flat that are adjacent to deeper water. During the day, catfish are found in deep holes. As night approaches, fish move up onto these shallow flats to feed under the cover of darkness."



cut bait is all that is needed.

No matter what time of year you decide to trotline, the best locations are usually shallow water areas like a stump field or sand flat that are adjacent to deeper water. During the day, catfish are found in deep holes. As night approaches, fish move up onto these shallow flats to feed under the cover of darkness. When setting your lines it's best to set shortly before dark to reduce bait stealing and catch of unwanted fish such as carp. When checking your lines, it is very important to run the lines as early in the morning as possible. As the sun rises, the fish become restless, wanting to return to the deep holes. Many fish are lost from trotlines because anglers check their lines too late in the morning.

Summer can be the most productive time of year as far as number of fish goes. Typical trotline catches run from one to five fish for every ten hooks. You may not catch many large fish, but you should catch a good number of eaters (fish from 12 to 18 inches). One of the most important things to remember about trotlining is to try a different bait or location if you are not catching anything. You need to locate the fish because when the physical parameters of a river change, such as water level or temperature, the fish adjust to these changes.

The fall fishing season is often forgotten by most because of one reason or another. Yard work, hunting or golfing are on the list of too many things to do and not enough time. Fall can produce a good creel of larger fish which are fun to catch. Typically you can use about any bait but, once again, vary your selection to find which ones work the best. Late fall trotlining can be more successful in deeper-water areas rather than shallow-water spring and summer areas.

When setting your lines in spring, summer or fall, there are basically two types of line sets, floating and sinking. You should experiment with these two types of lines to find which works best in your area. Floating lines are beneficial in flooded timber or flooded weed lines to help keep the bait above the snags and accessible to the fish.

Sinking lines allow you to avoid floating debris and to fish deep-water areas. Common sense should be used when setting or placing trotlines to avoid high-use boating or skiing areas.

### Rules and Regulations

There are many restrictions or regulations you must follow when using trotlines or bank poles. With a valid sport fishing license you are not allowed to use more than five trotlines. These trotlines cannot have more than 15 total hooks. This means that an angler using bank or ditty poles can only use five individual poles with no more than 15 total hooks on these five poles. Each line must have a tag, labeled with the owners name and address, attached above the waterline.

You are required to check the lines at least once every 24 hours. Other regulations concerning the use of trotlines can be found in the *Iowa Fishing Regulations* booklet.

A boundary water sport trotline license can be purchased from the Wallace State Office Building, Des Moines, Iowa, 50319-0034, for a cost of 10 dollars. A boundary water sport trotline license allows a person to use a maximum of four trotlines with no more than 200 total hooks. These lines must show your name and address on a metal tag attached above the waterline. You cannot sell any fish caught from trotlines unless you possess a commercial fishing license. A person can only use the boundary water sport trotline in the waters of the Mississippi, Missouri



DNR Photo





and Big Sioux rivers. Consult regulations of neighboring states before setting lines on boundary waters. There are differing restrictions among states.

If you are looking for a different fishing technique this summer, why not try trotlining. It is not as easy as many people may think. Like any type of fishing, trotlining requires a knowledge of the feeding patterns of the fish.

Be sure to take along a big dip net because you just might catch the fish of a lifetime.

**With multiple hooks on a trotline, it will be easier to bait the hooks ( in this case with crawfish) and set the line using a trotline box.**

Ron Johnson

*Dennis Weiss and Gene Jones are fisheries technicians for the department at the Bellevue Research Station.*



# A New Target for Rebuild

by Julie Tack

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**"Anything we can do to lower utility bills and decrease taxpayer burden should be a priority."**

**-Kelly Needles  
Rebuild Des Moines  
coordinator**

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How do you achieve energy efficiency in a city with more than 300,000 residents, thousands of businesses and tens of thousands of buildings?

The coordinators of Rebuild Des Moines asked that question when adopting the state's largest city as part of Rebuild Iowa, a joint initiative by the U.S. Department of Energy and Iowa DNR to help communities implement cost-effective energy efficiency and waste reduction improvements.

The solution? Kick off the program by targeting a segment needing extra help. "The number one overlooked sector in any city is public housing," said Kelly Needles, Rebuild Des Moines coordinator and president of The Energy Group. "Most private businesses just aren't interested in helping them, and many housing units tend to be neglected."

One reason for targeting public housing is because of the many residential-based programs and organizations with resources to contribute. With the help of the Des Moines Public Housing Authority, MidAmerican Energy and A-TEC (a private company specializing in residential energy efficiency), the Rebuild effort will make improvements in more than 900 housing units, both single dwelling and multi-family, over the next two years.

One of the programs involved is

HomeCheck by MidAmerican Energy.

HomeCheck is available for single-family dwellings, such as houses and duplexes, and provides up to \$150 in energy improvements per house.

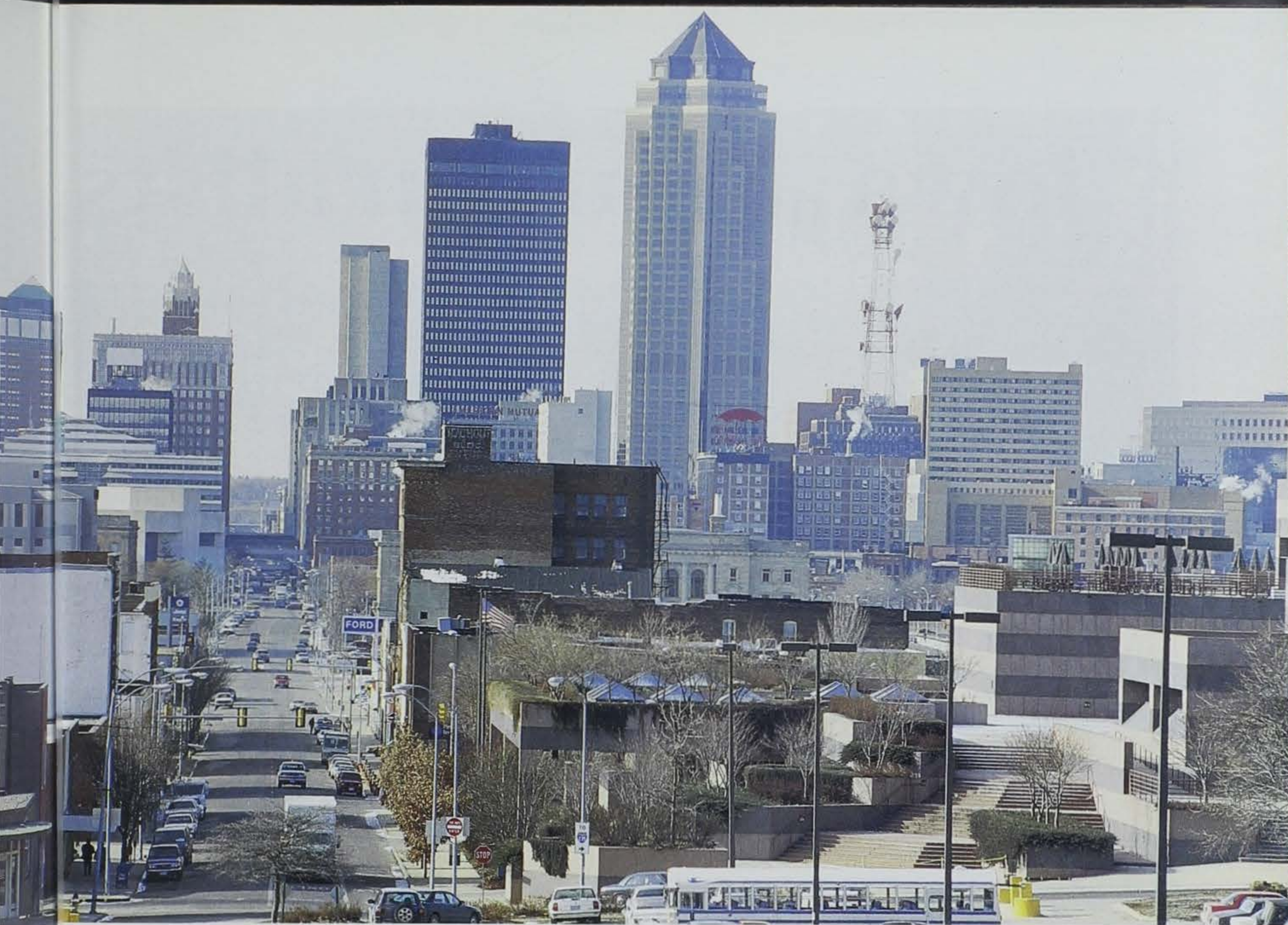
Energy specialists evaluate the homes and help install measures such as water heater blankets, low-flow shower heads and pipe insulation. Program participants — in this case, the City of Des Moines — can also insulate homes through financing from MidAmerican Energy; the energy company will pay up to 25 percent of the cost of installation.

The Energy Group and its partners are also researching federal programs for assistance. U.S. Housing and Urban Development (HUD) may provide the resources to purchase efficient refrigerators, stoves, washers and dryers for the public housing project.

Program coordinators predict improvements in 500 single-family public housing units will save the city \$18,000 in annual energy costs. "Public housing is essentially paid for by







taxpayers," said Needles. "Anything we can do to lower utility bills and decrease taxpayer burden should be a priority."

Rebuild Des Moines hopes their program will eventually serve as a model for other Iowa communities to address energy efficiency concerns in public housing.

Down the road, Rebuild Des Moines will extend to other sectors within the city. More than \$450,000 in improvements to city government buildings have been identified, which would save an estimated \$150,000 per year in energy costs. Coordinators also hope to reach local businesses by demonstrating the economic opportuni-

ties available through lower energy bills.

"Because of its size, Des Moines needs to take a unique approach for achieving energy efficiency than smaller, tightly knit communities," said Needles. "By opening this program up to new sectors and really targeting the needs of those groups, I think we can achieve an incredible level of success."

Other Iowa communities participating in Rebuild Iowa are Webster City, Hancock County, Waverly, Cedar Falls and Waterloo.

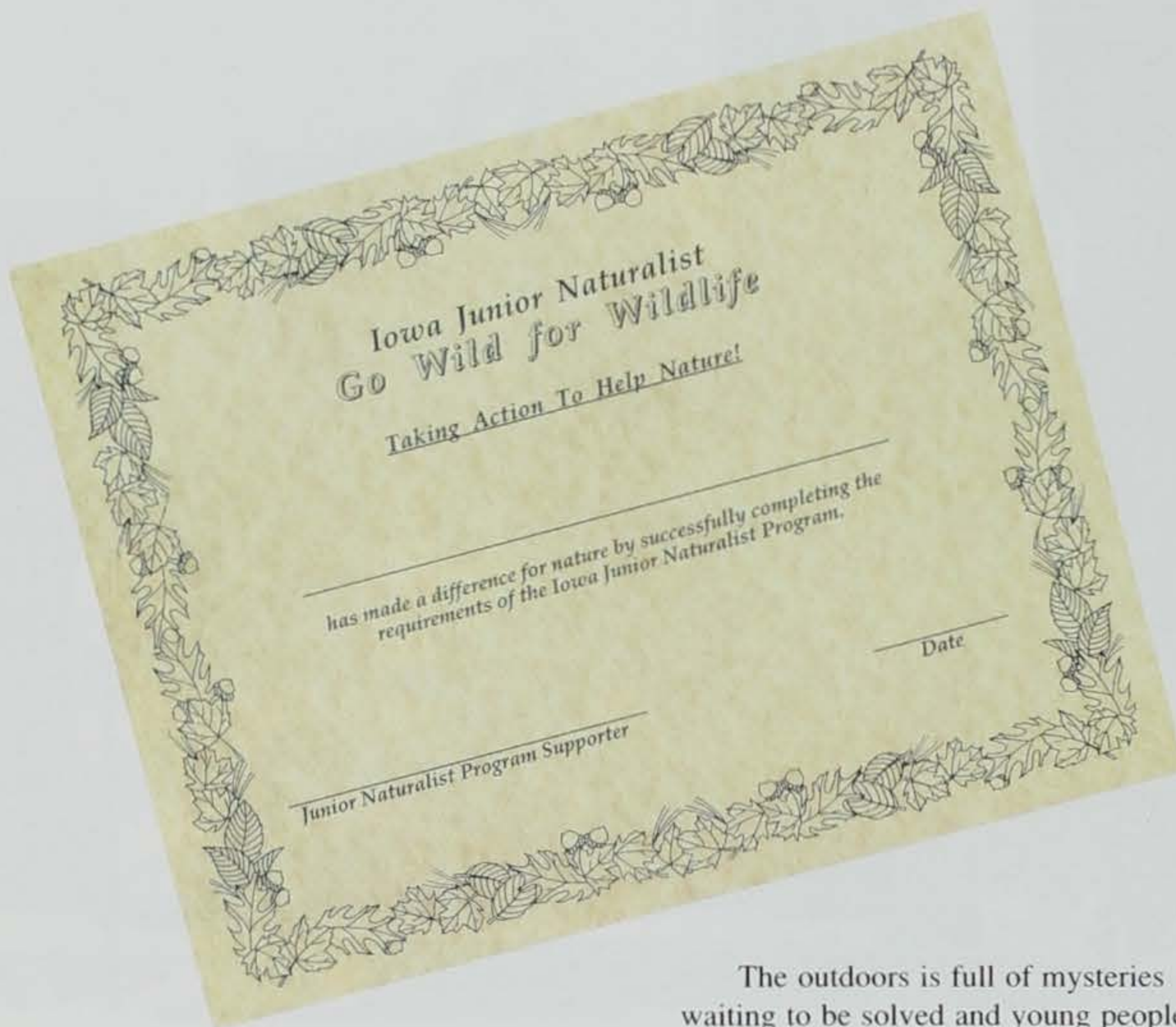
*Julie Tack is an energy information specialist for the department in Des Moines.*

**Rebuild Des Moines hopes their program will eventually serve as a model for other Iowa communities to address energy efficiency concerns.**



# iowa junior naturalists

by Tracey Breckenridge



Children receive a certificate and patch upon completion of the requirements of the Iowa Junior Naturalist Program. The patch will change each year to form a series for participants.

The outdoors is full of mysteries waiting to be solved and young people all over the state of Iowa have a chance to play detective. County conservation boards and the Department of Natural Resources are now offering the Iowa Junior Naturalist Program to children between the ages of 6 and 18.

The program is patterned after similar programs which have been organized across the United States. Pocahontas County Conservation Board (CCB) was the first to make the program available to Iowa children. After two years, most counties in Iowa have adopted the program.

The program's goals include giving children the opportunity to obtain environmental education, to enjoy outdoor recreation and to attend programs giving general information including natural history. This is a program for the whole family — parents are encouraged to get involved with their children by taking them on

outdoor adventures such as camping, fishing and hiking. One of the goals of the program is to give families a greater knowledge and enjoyment of the natural and cultural resources of Iowa.

The program is divided into two age levels. Level 1 children, between the ages of 6 and 12, have five requirements of completion. Each child must attend three public programs such as prairie hikes, night hikes, hunter safety programs and fishing programs. Two independent activities, such as reading or camping with parents or friends, must also be completed.

Level 2 children, between the ages of 13 and 18, must meet the same requirements as Level 1 children, with one exception. One of the independent activities completed must be a one-hour or more voluntary commitment toward a public conservation event. Examples of conservation events include National Trails Day and Earth Day.

All of the above requirements must be completed within one calendar year. Once these requirements are met, each participant receives a certificate of achievement and a patch that can be sewn onto a T-shirt or sash. The patches are embroidered with colorful pictures of Iowa plants or wildlife that will change each year and form a collection series for Iowa Junior Naturalist participants.

According to Bradley Freidhof, Pocahontas CCB naturalist and Junior Naturalist committee member, the program has the potential to make the participating children much more aware of their environment.

"The program has a very sound foundation and in its first two years has proved to be an excellent program. These children will be more environmentally conscious citizens in the future," he said.





Self-motivation is a very important factor. The committee tries to provide a wide selection of public programs so children have the opportunity to pick and choose among them, and enroll in the ones most interesting to them. "When the children are interested, they become more motivated," said Freidhof.

On average, each county provides about 20 programs throughout the year for children to attend. Again, they need to attend a minimum of three to complete the requirements and they are allowed to attend programs in other counties.

For example, if children living in Polk County visit their grandparents in Story County and a fishing program is being held, the children may attend that program and have the officer of Story County sign their record sheets.

In addition, if children travel to

other states and participate in any type of activity compliant with the rules of the Iowa Junior Naturalist Program, the park officer in that state may sign their record sheets and they will receive the appropriate credit. This gives children access to more programs in addition to the ones offered in their own county.

Kelly McKeown, Crawford CCB naturalist and Iowa Junior Naturalist committee member, has added a twist to her Iowa Junior Naturalist Program. In Crawford County, once children have completed the Iowa Junior Naturalist requirements, they can go on to be a staff volunteer. In this program, a child volunteers 50 hours of additional service to the environment. Once the child completes 50 hours, he/she receives a T-shirt on which patches earned from the Iowa Junior Naturalist Program can be placed. According to McKeown, there has been great interest

in the staff program.

"We had 48 kids involved this year which is more than twice as many as last year. We are trying to get the kids involved in the environment instead of in trouble," she said.

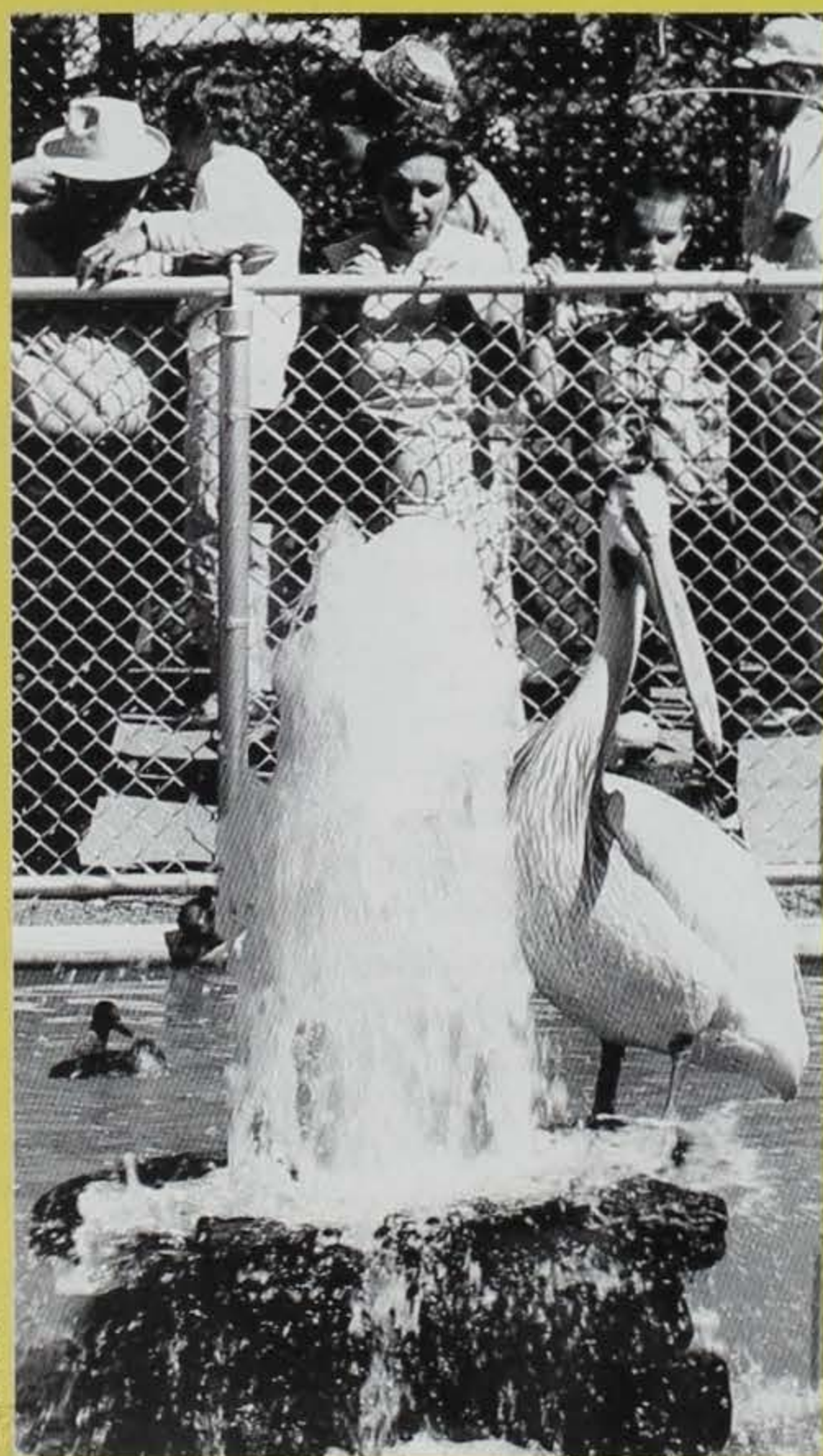
This is the second year of the Iowa Junior Naturalist Program in Iowa and approximately 30-40 children per county are involved. Enrollment information is available from any Iowa county conservation board or by contacting the Pocahontas CCB, 702 NW 7th St., Pocahontas, Iowa 50574-2006; phone 712/335-4395.

*Tracey Breckenridge is an administrative intern with the information and education bureau and is a student at Grand View College.*



# A Dream Realized: DNR Building Evolves at Iowa State Fair

by Tracey Breckenridge



DNR Photo





For more than 75 years, exhibits in the Department of Natural Resources building have informed and educated fair-goers about the importance of Iowa's natural resources. Founded by William E. Albert, the state fish and game warden from 1919 to 1932, today's building and exhibits represent the fulfillment of Albert's dream of developing a permanent, high-quality, educational facility at the fair.

The original exhibit in 1919 was a roughly fenced-in 75-by-140-foot tract containing different species of waterfowl and a steel stock tank of native fish. The exhibit also included game birds such as prairie chickens, quail and partridge.

In 1921, Albert ordered construction to begin on a new, modern aquarium. This decision was not without opposition. Because

the construction was being funded by revenue from the sale of hunting licenses, some Iowa sportsmen felt that Albert was disregarding their best interests.

Regardless of the opposition, Albert constructed walls around the aquarium in 1922. The following year, before the fair began, a roof was added. Construction of the building's outer walls and roof was completed, and the building appeared as it does today, in 1929.

With the formation of a new State Conservation Commission in 1935, the State Fish and Game building became known as the Conservation Commission building. At this time, exhibits included parks, law enforcement, wildlife, fisheries and forestry. The waterfowl pond and five outside animal pens were added in 1956 as well as picnic and rest areas.



Photo courtesy State Historical Society of Iowa—Des Moines



#### Construction on the Department of Natural Resources building took place from 1922 to 1929 (left).

William E. Albert, the state fish and game warden at that time, dreamed of developing a permanent, high-quality facility to educate fair-goers about the importance of Iowa's natural resources. His dream was realized in 1929 when the building was completed.

DNR Photo



Wayne Lomming





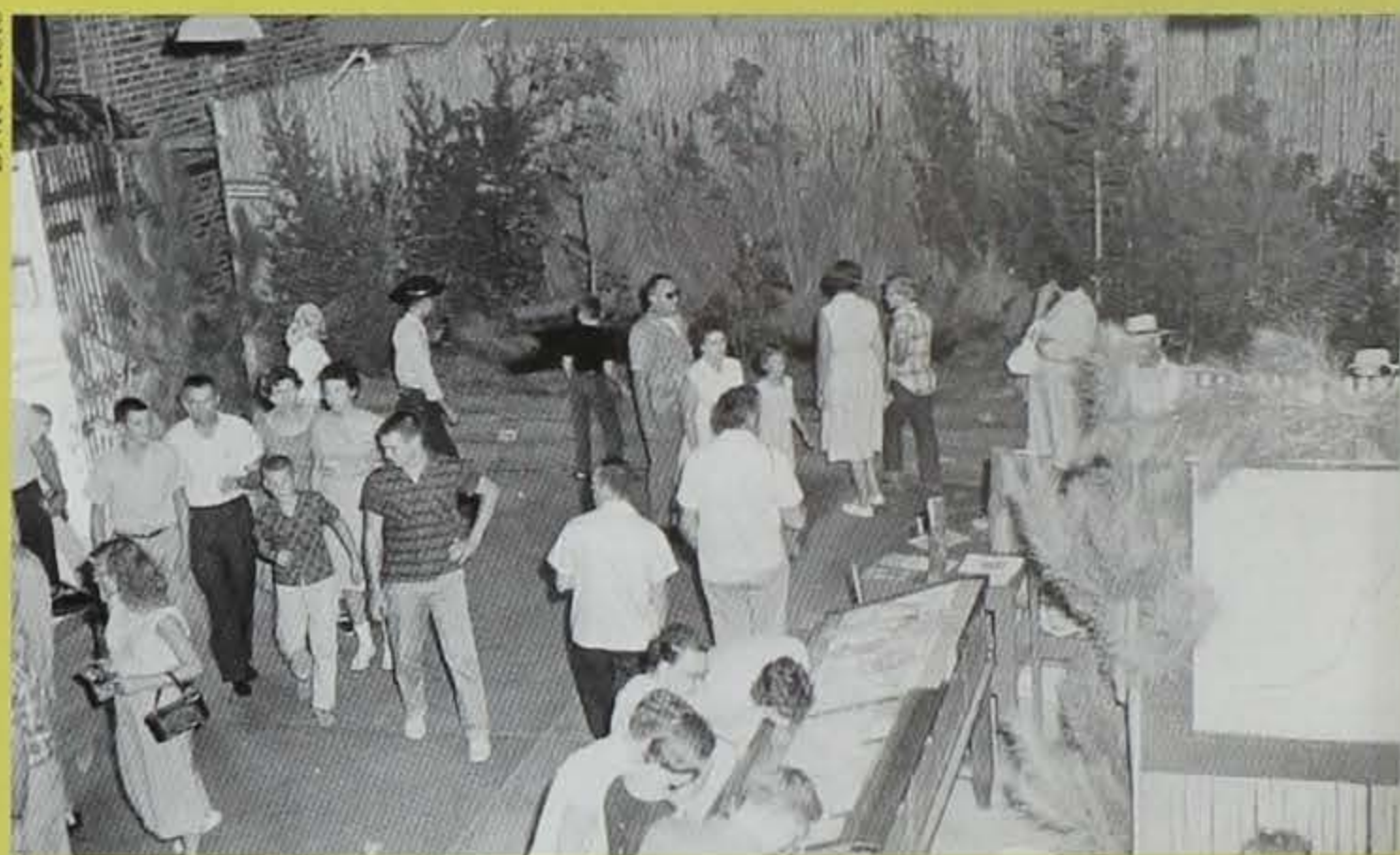
Ken Formanek

The exhibits evolved over time and for many years live wild animals were a major part of the Conservation Commission building. However, budget cuts resulted in closing the permanent wildlife exhibit at the Wildlife Research Station at Ledges State Park, the source of animals for the fair. Public concern over caged animals was also growing. The last year for wildlife at the building was 1981.

A reorganization of state government changed the building's name again to the Department of Natural Resources in 1986. More exhibits were added



DNR Photo



DNR Photo

Forestry exhibits have been on display since the 1930s (top, right center). The aquarium was originally constructed in 1921-22 and represents the first phase of construction of the building as a whole (left center). In 1925, Oscar, the famed rock sturgeon, was displayed in the aquarium. He was rumored to weigh in excess of 110 pounds and was an attraction for 28 years (below).



Photo courtesy State Historical Society of Iowa—Des Moines







Ken Formanek



Photo courtesy State Historical Society of Iowa—Des Moines



Waterfowl have always been featured at the fair. In 1935, a waterfowl pond was added outside of the building. Today, the pond is surrounded by a courtyard of native plants and picnic area (top). This wind turbine, part of the Energy Bureau exhibit built in 1996, exists at a location separate from the DNR Building. It is used to harness wind energy for the fairgrounds (right).

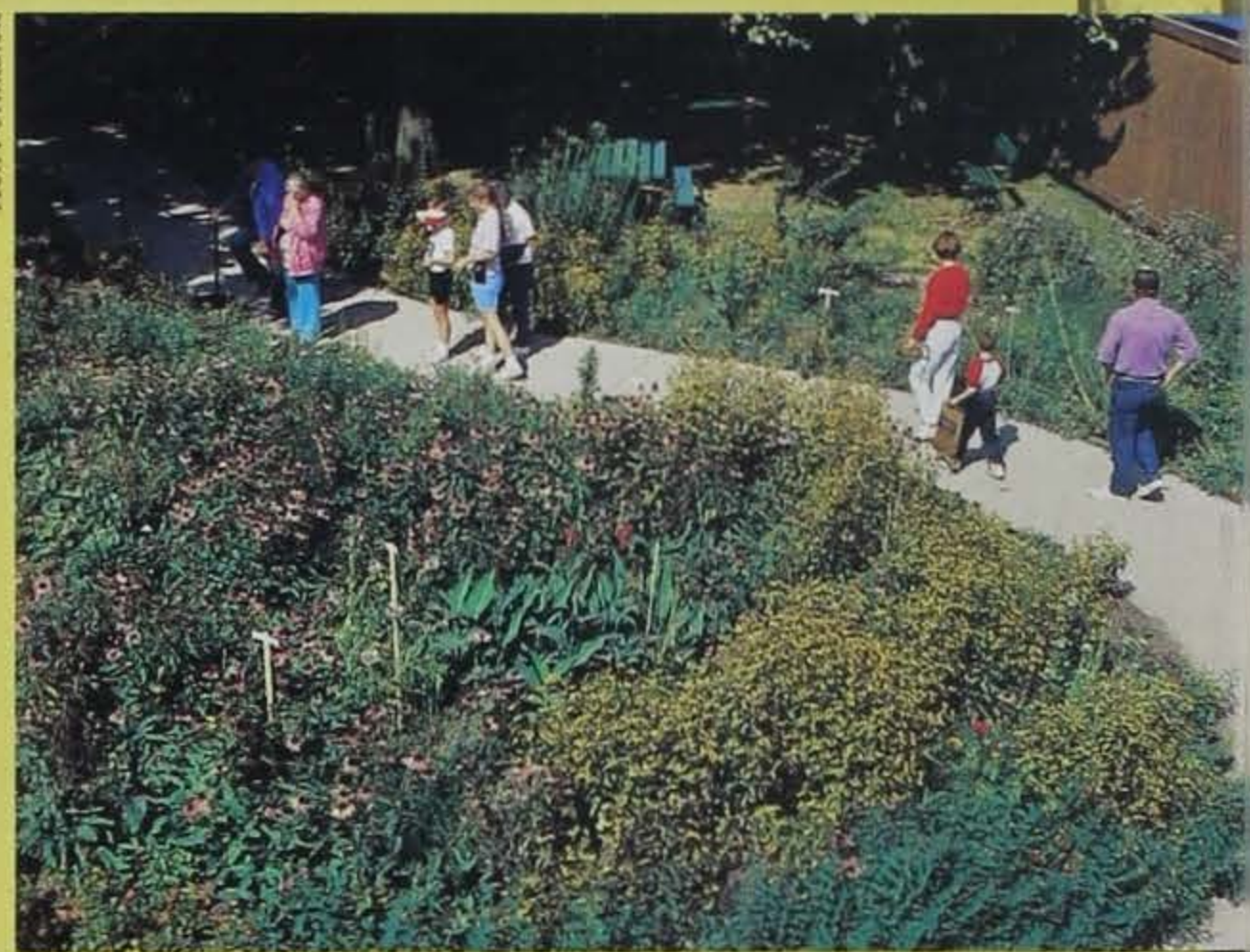


Ken Formanek





Ken Formanek



Ken Formanek

including energy, geology, environmental protection and waste management to reflect the broader scope of the new agency.

In 1996, the aquarium was remodeled to update the outdated system used to care for the fish. The infrastructure of the aquarium was completely replaced including tanks, wiring and plumbing. A new cooling system was installed as well keeping water temperatures lower and consequently putting less stress on the fish. Externally, a few tiles were added to fit the new tanks to the windows, preserving the integrity of the original structure.



Ken Formanek



Ken Formanek



In 1986, the building was renamed the Department of Natural Resources Building after a reorganization of state government. More exhibits were added to reflect the broader scope of the new agency. Currently, all of the above exhibits can be found inside the building.

The Department of Natural Resources building today includes more new exhibits every year. The waterfowl exhibit still exists and is located on the west side of the building along with a courtyard of native plants and a picnic area. The *Iowa Conservationist* occupies a space in the building giving fair-goers a chance to renew their magazine subscriptions. Hunting and fishing licenses are also available.

While you're at the fair this year, don't forget to stop by and visit the DNR. Albert created it for you.

*Tracey Breckenridge is an administrative intern with the information and education bureau and is a student at Grand View College.*



# IOWA 1998-99 HUNTING SEASONS AND BAG LIMITS

SPECIES	SEASON (DATES INCLUSIVE)	SHOOTING HOURS	BAG LIMITS	
			DAILY	POSSESSION
Youth Rooster Pheasant (age 15 or younger)*+	Oct. 24-25	8:00 a.m. to 4:30 p.m.	1	2
Rooster Pheasant	Oct. 31 - Jan. 10, 1999		3	12
Bobwhite Quail	Oct. 31 - Jan. 31, 1999		8	16
Gray Partridge	Oct. 10 - Jan. 31, 1999		8	16
Rail (Sora & Virginia)	Sept. 5 - Nov. 13	1/2 Hour Before Sunrise to Sunset	12	24
Snipe	Sept. 5 - Nov. 30		8	16
Turkey (Gun)*	Oct. 12 - Nov. 30		One turkey per license	One turkey per license
Turkey (Bow Only)*	Oct. 1 - Dec. 4 and Dec. 21 - Jan. 10, 1999	1/2 Hour Before Sunrise to 1/2 Hour After Sunset	One deer per license	One deer per license
Deer (Bow)	Oct. 1 - Dec. 4 and Dec. 21 - Jan. 10, 1999			
Deer (Muzzleloader)	Oct. 17- Oct. 25* or Dec. 21 - Jan. 10, 1999			
Youth Deer (Age 12-15)+	Sept. 19 - Oct. 4			
Deer (Bonus Late Season)	Jan 11 - 17, 1999	Sunrise to Sunset	3 10 2 6	6 20 4 12
Deer (Shotgun)	Dec. 5 - Dec. 9 or Dec. 12 - Dec. 20			
Ruffed Grouse	Oct. 3 - Jan. 31, 1999			
Rabbit (Cottontail)	Sept. 1 - Feb. 28, 1999			
Rabbit (Jack)	Oct. 31 - Dec. 1	None		
Squirrel (Fox & Gray)	Sept. 1 - Jan. 31, 1999			
Groundhog	June 15 - Oct. 31			
Crow	Oct. 15 - Nov. 30 and Jan. 14 - March 31, 1999			
Pigeon**	Oct. 1 - March 31, 1999	None Open 8:00 a.m. First Day Only	None	
Raccoon and Opossum	Nov. 7 - Jan. 31, 1999			
Fox (Red & Gray)	Nov. 7 - Jan. 31, 1999			
Coyote	Continuous Open Season			

\*Residents only \*\*However, within 100 yards of buildings and bridges pigeons may be taken year round. + See regulations for all requirements.

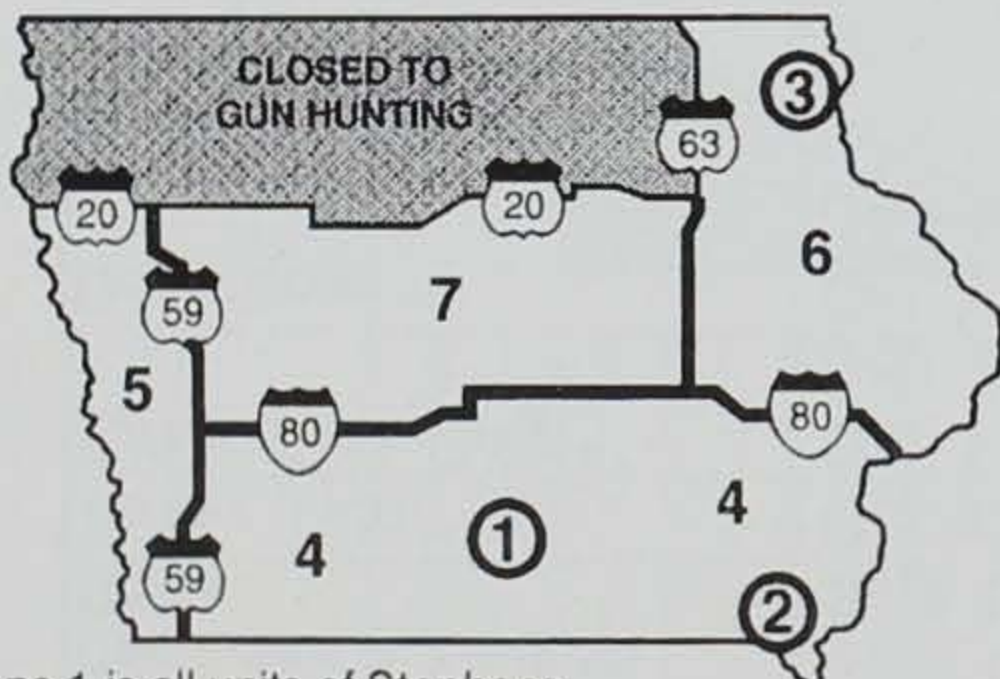


## 1998-99 TRAPPING SEASONS

SPECIES	OPENING	CLOSING
Mink, Muskrat,* Raccoon, Weasel, Striped Skunk, Badger, Opossum, Fox (red & gray), Coyote	Nov. 7  **	Jan. 31, 1999  **
Beaver	Nov. 7	April 15, 1999
Civet Cat (spotted skunk), Bobcat and Otter	Continuous Closed Season	
Groundhog	June 15	Oct. 31

\*Selected areas may be established in February, for muskrat trapping only.  
 \*\*All furbearer seasons open at 8 a.m. on the opening date. There are no daily bag or possession limits.

Fall Turkey Zones



Zone 1 is all units of Stephens State Forest west of U. S. 65 in Lucas and Clarke counties  
 Zone 2 is all units of Shimek State Forest in Lee and Van Buren counties  
 Zone 3 is units of Yellow River Forest in Allamakee County  
 Bow-only fall turkey licenses are valid statewide.  
 Fall turkey season is closed to nonresidents in 1998.

## Fall Turkey License Quotas

Zone 1	50
Zone 2	50
Zone 3	50
Zone 4	2,000
Zone 5	300
Zone 6	3,000
Zone 7	200

## 1998 PROPOSED WATERFOWL HUNTING SEASONS AND BAG LIMITS

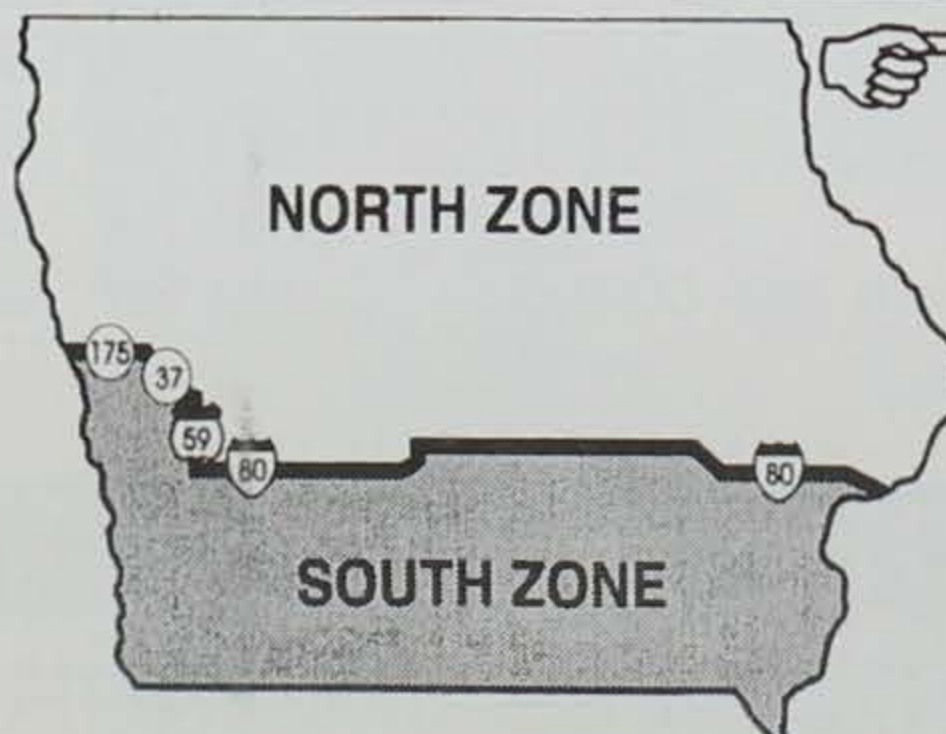
Final waterfowl seasons and bag limits are published in September.  
 Nontoxic shot is required statewide for waterfowl hunting.

SPECIES	SEASON (dates inclusive)	AREA	SHOOTING HOURS	BAG LIMITS	
				DAILY	POSSESSION
Ducks	Sept. <del>19-23</del>	N. Zone	1/2 Hour Before Sunrise to Sunset	⑥ (see below)	⑫ (see below)
Early season	Sept. <del>19-23</del>	S. Zone		⑥(see below)	⑥(see below)
Youth Duck Day	Sept. ②⑥	Statewide		⑥ (see below)	⑫ (see below)
Ducks	Oct. ⑩ - Dec. ③	N. Zone		②	④
Late season	Oct. ⑩ - Dec. ⑩	S. Zone		②Canadas, ②White-fronts, ②Brant	④Canadas, ④White-fronts, ④Brant
Canada Geese Only	Sept. ⑫-⑬	N. Zone only		⑩snow geese	③⑩snow geese
Geese	Oct. ③ - Dec. ⑪	N. Zone		⑩snow geese	③⑩snow geese
Canada/ White-fronted/ Brant	Oct. ③ - ⑪ Oct. ⑩ - Dec. ⑩	S. Zone		⑩snow geese	③⑩snow geese
Geese - Snow	Oct. ③ - Dec. ②⑨	Statewide		⑩snow geese	③⑩snow geese
Early season	Feb. ②⑩ - March ⑩, 1999	Statewide		⑩snow geese	③⑩snow geese
Geese - Snow				⑩snow geese	③⑩snow geese
Late season				⑩snow geese	③⑩snow geese
Coots	Same as Ducks			⑩snow geese	③⑩snow geese
Woodcock	Oct. ③ - Nov. ⑩	Statewide	Sunrise to Sunset	③	⑥

Ducks: The daily bag limit is six (⑥) ducks and may include no more than four (4) mallards (no more than two (2) of which may be a female), one (1) black duck, two (2) wood ducks, two (2) redheads, one (1) canvasback and three (3) pintails.

The possession limit for ducks is twelve (⑫) ducks and shall not include more than eight (8) mallards (no more than four (4) of which may be female), two (2) black ducks, four (4) wood ducks, four (4) redheads, two (2) canvasbacks, and six (6) pintails.

Mergansers: Daily bag limit is five (5) (no more than one (1) of which may be a hooded merganser); possession limit is ten (10) (no more than two (2) of which may be hooded mergansers).



Information circled is subject to change. Waterfowl season dates and bag limits will be determined after Federal guidelines are released in August. Final season dates and bag limits will be published in September.

Call 515/281-HNTR (4687)  
 for season information 24-hrs a day  
 internet address -- [www.state.ia.us/dnr](http://www.state.ia.us/dnr)



# 1998 Calendar of Events

## JULY 17-19

**ITRA Competitive Ride** • Brushy Creek Recreation Area

Contact Norma Newton at 515/543-8298 for more information.

18

**Lehigh River Days • Project Bus Tour** • Brushy Creek Recreation Area

Contact park office at 515/543-8298 for more information.

18-19

**Lake View Water Carnival** - near Black Hawk State Park

10K run-for fun; mud volleyball; beer garden; omelet breakfast; antiques, arts and crafts; carnival rides, parades—street and water; Little Miss Black Hawk Pageant; talent show, fireworks on Saturday night

•Contact Andy Meredith at 712/657-8567 for more information.

18-19

**Park Appreciation Days** • Pilot Knob State Park • 515/581-4835

20-24

**WIT Rally (Winnebago Itasca Travelers)** • Bellevue State Park • 515/582-3535

25-26

**John Henry Weber Buckskinner Rendezvous** • Bellevue State Park

Experience life as a buckskinner • 319/872-4019

## AUGUST 6-9

**Cedar Trails Festival** • George Wyth Recreation Area

A community event celebrating the Cedar Valley Trail System

Senior trail cruise, fireworks display, candlelight trail ride (6.2 mi.)

Bike rodeo, mountain bike rides, family fun days • 319/232-5505

8

**Whale Town Triathlon** • Lake Anita State Park

1K swim, 40K bike ride, 10K run

• Contact Jon Jordan at 712/762-3779 - daytime; 712/783-4568 - evening

8-9

**Lake View Carp/Loony Days** • Black Hawk State Park • 712/657-8712

Tagged carp worth money, cash prizes for largest, smallest and most pounds caught.

15

**Big Creek Triathlon** • Big Creek State Park

6-mile run, 1-mile swim, 25-mile bike ride • 515/285-0444

23

**Half Iron-Man Distance Event** • Pleasant Creek Recreation Area

Entry fee required • Contact John Snitko at 319/373-0741

## SEPTEMBER 5

**Project Tours** • Lake Ahquabi State Park • 10 a.m. & 4 p.m.

CCC Renovations, lake improvements, Warren County Annett Nature Center • Shuttle services available.

12

**Park to Park Race** • George Wyth Recreation Area • 319/232-5505

Annual race using trail system between George Wyth Recreation Area and Black Hawk County Park.

• 5K run, 1/2 marathon run, 1/2 marathon in-line skate race

26-27

**Ft. Atkinson Rendezvous** • Ft. Atkinson State Park

Buckskinners, military exhibits, crafts from the 1840s

Food available, no admission fee • 319/425-4161

## OCTOBER 10

**Lehigh Fall Fest • Project Bus Tour** • Brushy Creek Recreation Area

Contact park office at 515/543-8298 for more information.

10-11

**Lacey-Keosauqua Forest Craft Festival** • Lacey-Keosauqua State Park

Wood craft exhibitors, buckskinners, chainsaw sculptors, saw mill demonstrations

Food stands on grounds, no admission fee

Shuttle services available. • 319/293-3502

16-17

**Haunted Forest** • Nine Eagles State Park • 515/442-2855

7:00 p.m. - 10:30 p.m. • Admission fee charged.



Just inside the horseshoe bend...

# Lacey- Keosauqua State Park

Article by Wayne Buzzard  
Photos by Ken Formanek



The village of Keosauqua lies on the horseshoe bend of the Des Moines river on Highway 1 in VanBuren County. Across the river bridge from Keosauqua is the entrance to Lacey Keosauqua State Park. This beautiful 1,653-acre park is bordered on the north side by the Des Moines River.

Lacey-Keosauqua was one of the "charter" group of state parks. The tract of rugged woodland and bluffs along the Des Moines River had been identified early on as a potential state park.

The formal opening and dedication of the park was October 26 and 27, 1920. It was called Keosauqua State Park until 1926 when the name was changed to Lacey-Keosauqua State Park to honor Major John Fletcher

Lacey. Lacey  
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Lacey. Lacey, a congressman, was instrumental in the development of the national parks system.

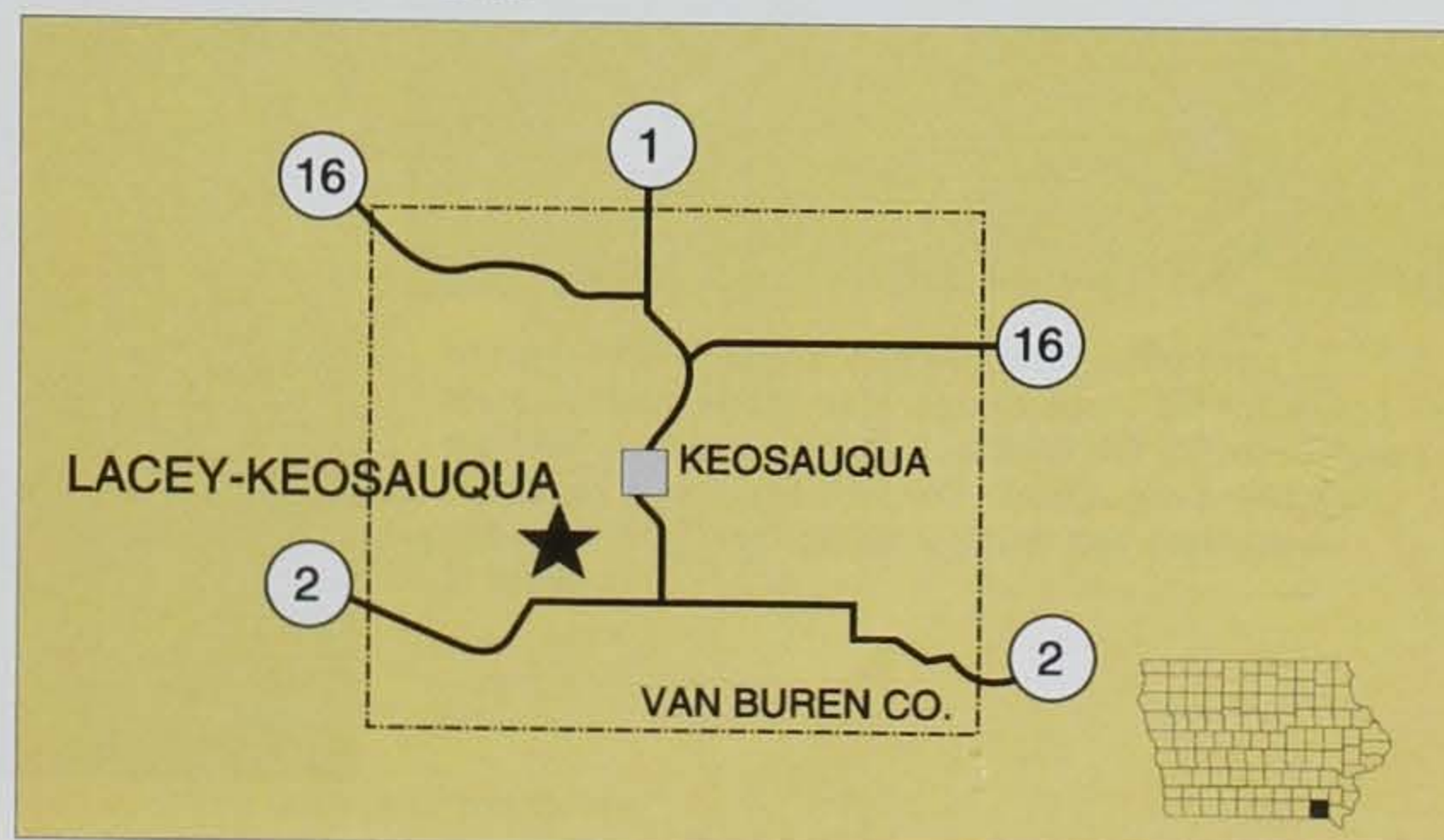
The beautiful old stone lodge was built by the Civilian Conservation Corps (CCC) and is currently being renovated. It will be completed this October, in time for the Forest Craft Festival held the second full weekend in October. The lodge can be reserved by contacting the park ranger.

There are two stone shelters, also constructed by the CCC, which are being renovated. One of these shelters can be reserved.

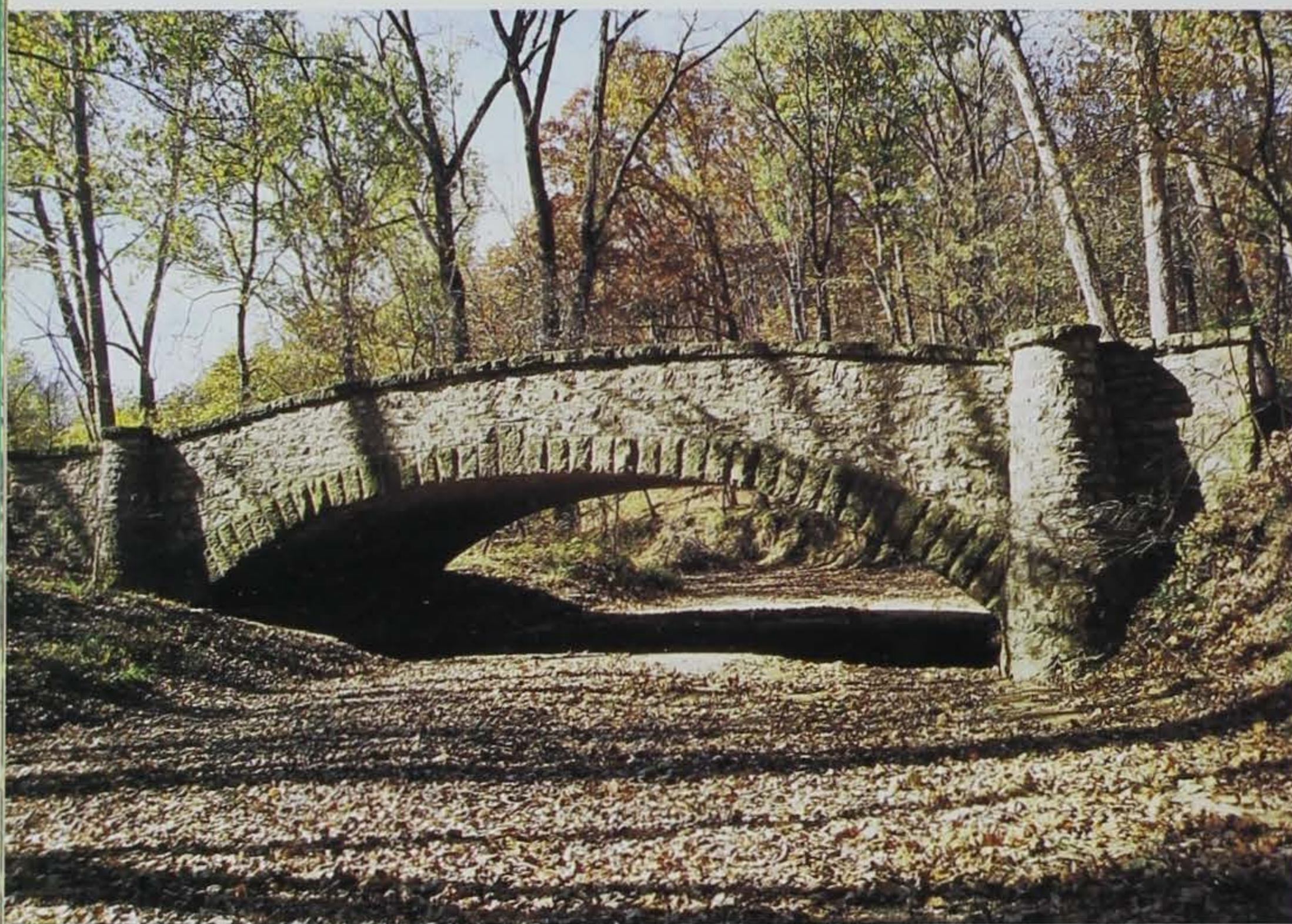
The bathhouse, stone retaining walls and steps to the beach are being restored. These projects should all be completed by late summer.

Much of the limestone used in the

The old stone lodge was built by the Civilian Conservation Corp and is currently being renovated. Renovations will be completed by October in time for the Forest Craft Festival.







Limestone from the park's quarry was used to construct the stone bridge. The stone shelters were constructed by the Civilian Conservation Corp and are now being renovated. The lake features a beach for swimming and a trail winding through the woods around it.

lodge, shelters, retaining walls, custodian's house and bridges came from the quarry in the park. The construction was done by the CCC, with prison labor also used to build roads and trails throughout the park.

Six seasonal-use cabins were built in 1940 as the park's popularity grew. These structures remain popular, especially with young families. They are available from May 1 to October 31.

For those who prefer campers or tents, there are 113 camping sites with 45 electric hookups. In 1990, a new shower building was added for greater convenience.

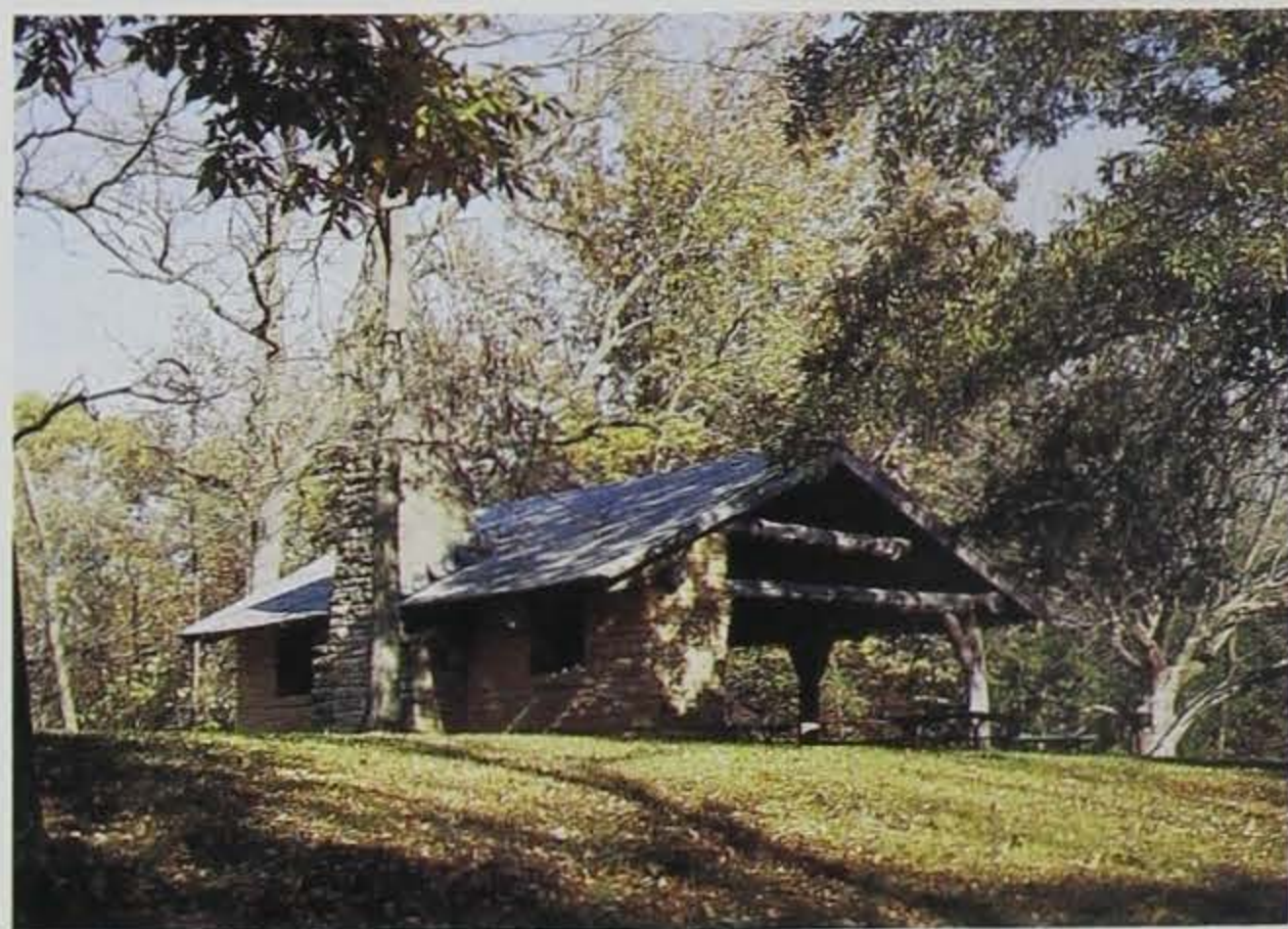
A 22-acre lake, with a beach for swimming, is a short distance from the cabins and within walking distance from the campground.

Several trails wind along the river, through the woods and around the lake. A newly opened trail leads from the Lacey-Keosauqua trail to Lake Sugema, a 574-acre lake one mile south of the park. Lake Sugema is fast becoming a popular fishing spot.

Plan a visit to Lacey-Keosauqua Park and enjoy a night of camping, a stay in a cabin, a hike in the woods or a day swimming at the beach. You can always head down to Lake Sugema for some great fishing.

Come on out and enjoy this great outdoors and we'll see you there.

*Wayne Buzzard is the park ranger at Lacey-Keosauqua.*





# Practical Conservationist

## CAMPING WITH KIDS

by Scott Kees

Camping with your children can be a fun and rewarding experience for all involved. Camping offers a great way to introduce your young ones to the wonders of nature.

Because vacations are short and kids get bored riding in a car, it might be worthwhile for parents to consider a camping area close to home. Iowa offers a host of excellent camping destinations.

"Ledges State Park, in Boone County, has all the right ingredients," says Angela Corio, landscape architect for the DNR and mother of two. "There are giant sandstone formations to climb on, numerous spots for playing barefoot in the creek and a great play structure in the campground area."

Since you are probably counting your camping experience as vacation, you want to make sure that you actually get a vacation. Vacations are for creating memories of fun in the sun. You want your camping experience to be as stress-free as possible.

When deciding where to go camping, consider the age of your children and what their interests are. Keep in mind, most young children are not interested in historical markers, sight-seeing or shopping. Campsites that offer swimming areas, nearby miniature golf, biking trails or anything that allows a child to be physical will meet the children's needs while offering parents the close-to-conflict-free vacation they are looking for.

"Maquoketa Caves State Park is a child's fantasy come true," says Corio. "There are 14 caves to explore, lush vegetation and high limestone bluffs — don't forget to bring enough flashlights for everyone."

Proper packing for your family camping trip can make a big difference. Taking a couple extra moments to make sure you are thoroughly packed can mean spending more time relaxing and less time (and money) buying necessities on the road.

Use soft-sided luggage for the kids, one bag per child. Let them pack their favorite things. Include color pens, pencils, books, scratch pads and treats. Softcover books travel well — try some

## PACKING CHECKLIST

### EMERGENCY BOX

- \_\_\_ flashlights
- \_\_\_ batteries
- \_\_\_ wooden matches
- \_\_\_ lighter
- \_\_\_ battery-powered radio
- \_\_\_ basic tools
- \_\_\_ small fire extinguisher
- \_\_\_ first-aid kit
- \_\_\_ sun screen
- \_\_\_ bug-spray
- \_\_\_ sewing kit
- \_\_\_ duct tape
- \_\_\_ rope
- \_\_\_ trash bags

### GEAR

- \_\_\_ tent
- \_\_\_ ground cloth
- \_\_\_ sleeping bags
- \_\_\_ blankets
- \_\_\_ inflatable cushions
- \_\_\_ pillows
- \_\_\_ camping lanterns
- \_\_\_ camp stove
- \_\_\_ cooler
- \_\_\_ baby backpack
- \_\_\_ backpacks for the kids
- \_\_\_ toys/books
- \_\_\_ stroller

### COOKING UTENSILS

- \_\_\_ plastic tub
- \_\_\_ antibacterial dish soap
- \_\_\_ paper plates or reusable plates
- \_\_\_ silverware
- \_\_\_ napkins or paper towels
- \_\_\_ zip-lock storage bags
- \_\_\_ aluminum foil
- \_\_\_ spatula
- \_\_\_ frying pan and pot
- \_\_\_ bottled-water
- \_\_\_ towels



Ken Formanek

An early introduction to the outdoors can lead to a lifetime of family fun.



# Practical Conservationist

about the animals and plants you may encounter during your visit. Books will also come in handy when your kids are looking for a bedtime story. Tapes of sing-along music will keep spirits high as you set-up and break-down camp. Be sure to bring indoor activities, in case it rains.

Plan meals ahead of time and involve the kids as much as ages allow. Include your kids in meal preparation at camp too.

When camping with babies, be prepared to get up at dawn — being in a new environment, they may be prone to waking up with the first signs of light. Use blankets or big comforters for bedding because a noisy sleeping bag can wake anyone of any age. Consider using a battery-powered fan to lull your little one to sleep and keep them comfortable. As the little ones get older (six months to three years), let them sit in their stroller around the campfire. It lets them be part of things and also keeps them in a safe, familiar environment.

Allow extra time for exploring and other diversions. If the kids want to see a particular sight — let them. After all, it's their vacation as well.

Camping at Iowa parks with your children can be a wonderful experience. Just remember to take into consideration

your choice campsite, be a thorough packer, respect other campers and follow safety rules.

"Children are so easily entertained on a camping trip," says Corio. "A hike in the woods offers much to explore and time around the campfire at night is so different from their everyday lives — it can be a time that they never forget."

Write to the DNR, Wallace State Office Building, Des Moines, Iowa 50319-0034 for *State Parks and Recreation Ar-*

*eas of Iowa*; the Department of Economic Development, Division of Tourism, 200 E. Grand Ave., Des Moines, Iowa 50309 for their *Camping and Outdoor Guide* or the Iowa Association of County Conservation Boards, 405 SW 3rd St., Suite 1, Ankeny, Iowa 50021 for county park information.

*Scott Kees is a freelance writer, photographer and graphic designer from Des Moines.*

## CAMPING ETIQUETTE AND SAFETY TIPS

While you want your family camping vacation to be a success, remember other people are on their vacation too. Follow basic camping etiquette to help others have a good time.

- If you bring it in — bring it out, leave your campsite cleaner than you found it, treat the rest rooms as if you were at home.
- If the signs say "keep off" or "don't touch" — keep off and don't touch.
- Register at fee areas to help with park maintenance.
- Keep radio volume levels to a minimum.
- DO NOT LITTER.

- Treat wildlife with respect (this includes NOT feeding them).

There are also some general safety rules to keep in mind.

- Stay on the trails (hiking off trails is unsafe, damages vegetation and causes erosion).
- Always plan a meeting place should a member of your family become separated from the pack. Young children should be taught to stay within eyesight and older children within ear-shot. Teach your children to stay where they are if they become lost. Instruct them to find a nearby tree and stay with it until they are found. Older kids can also carry a whistle around their neck to call for help when lost. The standard distress signal is three blows to indicate "I'm lost" or "I need help."
- Stay clear of grassy, brushy areas to avoid tick bites. Wear light-colored clothing so ticks are easier to detect. Tuck shirts into pants and pant legs into socks. Do not wear shorts on trails.
- Observe posted speed limits in the parks.
- Lock your car and keep valuables in the trunk.
- Keep your campsite clean and free of food smells by using plastic containers, and packing out or disposing of all food wastes in the park trash receptacles.



Ron Johnson



## Looking For Some Shade! *by Don Sievers*

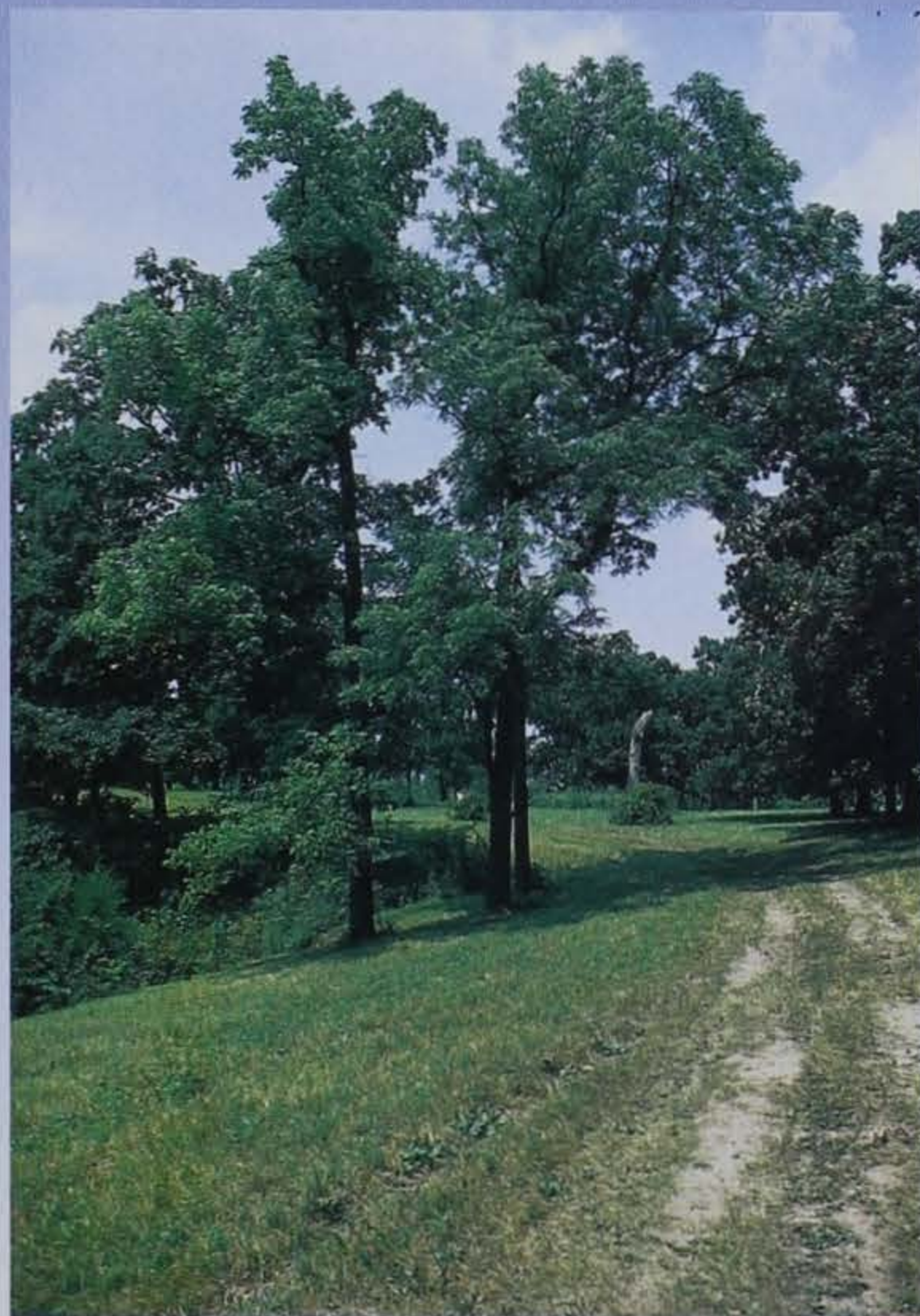
Let's go stand in the shade!

During summer the shade from a tree is often more noticeable than the tree itself. Plants found beneath the forest canopy seek protection from the hot rays of the sun. Shade creates a micro-climate for both animals and plants, allowing them to survive during hot weather.

Mature trees may absorb, through their roots, from 40 to 60 gallons of water each day. Because moisture is vital for survival, trees have developed ways to conserve water. Water is lost from trees by a process known as evapotranspiration. Transpiration is the movement of water from plant roots through the stem to the leaves where evaporation occurs. Evaporation of water is increased by heat and wind.

Water loss creates a problem because leaves need a continuous supply of water to avoid dehydration and to carry out photosynthesis. Trees must develop ways of exposing their leaves to the sun for photosynthesis, but prevent the loss of too much water.

One way trees conserve water is to have two sizes of leaves. Sun leaves are small, with less surface area, which reduces the amount of exposure to the sun and wind. Shade leaves are large, with greater surface area, which increases the amount of area exposed to the sun and wind.



A common Iowa tree, the black walnut, can absorb 40 or more gallons of water per day.

Ron Johnson

### Age:

Grades 4 - 8

### Objective:

In this exercise students will do two experiments to learn how trees conserve and lose water.

### Materials (experiment 1):

Hand pruner (extension optional)  
Metric ruler  
Ladder (optional)  
Pencil and paper

### Materials (experiment 2):

Clear plastic bag that can be tied shut at the top (quart size)  
Several small clean pebbles  
Tree standing in sunlight

*Don Sievers is a training officer for the department at Springbrook Conservation Education Center near Guthrie Center.*



# Classroom Corner

## Discussion Questions

### (Exp. 1)

1. Compare the measurement?
2. Which group of leaves are larger?
3. Which group of leaves is smaller?
4. Which group of leaves are sun leaves and which are shade leaves?

5. Why does a tree have sun leaves that are smaller and shade leaves that are larger. What are the relationships between needing sunlight, needing to reduce water loss and the size of a leaf?

### (Exp. 2)

6. How might transpiration from leaves affect the temperatures and humidity in a forest?

7. How much water would the tree you sampled give off in one year? (Research to determine the average length of the growing season where you live.)

8. What effect, if any, might trees have on weather and the atmosphere in an urban area? in an area without trees?

## References:

Iowa Department of Natural Resources, Forestry Division. March 1997. *20 Common Trees of Iowa*. State of Iowa. 24 pages.

Iowa Department of Natural Resources, Forest and Forestry Division. 1993. *An Iowa Supplement to Project Learning Tree K-8*. 150 pages.

## Sun and Shade Leaf Experiment (Experiment 1)

### Procedure:

1. Explain about sun and shade leaves.
2. Ask students where they would expect sun and shade leaves to be found on a tree?
3. Locate a tree in an open area. Remove three leaves from different locations high on the south side of the tree. Measure the length and width of each leaf and record the measurements under the category *canopy leaves*.
4. Obtain three leaves from the north side of the tree from positions which are lower. Select leaves that appear to be growing in the shade of other branches. Measure the length and width of each leaf and record the measurements under the category *understory leaves*.

### Sun Leaf / Shade Leaf Comparison

Sample	Canopy Leaves		Understory Leaves	
	Length (cm)	Width (cm)	Length (cm)	Width (cm)
1				
2				
3				
Average				

## Transpiration Experiment (Experiment 2)

### Procedure:

1. Find an average-sized leaf on a tree which receives good sunlight.
2. Place the pebbles in the bag and close it around the leaf, being careful to keep the leaf firmly attached to the tree.
3. Wait 24 hours.
4. Carefully remove the bag and measure the volume and mass of the water collected in the bag.
5. Estimate the number of leaves on the tree and multiply by the volume of water collected.

1. Volume of water = \_\_\_\_\_ ml

2. Estimate number of leaves x volume of water collected = total water loss through the trees leaves

\_\_\_\_\_ leaves (x) \_\_\_\_\_ ml of water per leaf = \_\_\_\_\_ ml of water lost



## Hunter Education Instructor Named Instructor of the Month

Iowa volunteer hunter education instructor Harley Shipley was recently named instructor of the month by Hunter Education Instructor (HEI) monthly magazine.

Shipley was picked as winner of this national contest after being nominated by the Iowa DNR.

Operating a 65-acre family farm and working at an industrial plastics manufacturing plant keeps 38-year old Shipley busy.

But not too busy to devote considerable time and energy to southeast Iowa's hunter education program. Lauded by Hunter Edu-



**Chris Flynn, local conservation officer presents Harley Shipley with gun.**

cation Administrator Sonny Satre with the Iowa Department of Natural Resources, Shipley joined the program 15 years ago. Nine years ago he was certified as a fur harvester instructor. Five years ago, Shipley was also certified to teach bowhunter education. Over his career, he has taught 532 students, and assists those with reading disabilities to understand the material.

What initially motivated Shipley to join the program was recognition of need.

"We just didn't have many instructors in the area," he recalled. "A group of us got together and got certified, and I have been enjoying it ever since."

There seems to be little doubt that he will continue as a volunteer instructor. Currently the chief instructor for southern Iowa's Van Buren County, he coordinates the activities of ten fellow volunteers and assists them with their classes around the county. He attends regional training workshops and the state-

wide instructor workshop. Shipley has gone through seminars on survival skills, tree stand safety, black powder, shotguns and archery.

Over and above all of that, Shipley will be active again this summer as ramrod of the Iowa Youth Hunter Education Challenge's black powder station, which he has run since the program was initiated in 1993.

In nominating Shipley for this award, Satre noted, "He encourages hands-on

training. His classes provide live firing with rifles, shotguns, black powder and archery for each student."

Shortly, his classes will also have the added presence of a new Harrington & Richardson 20-gauge single-shot shotgun. The gun will wear a laser-engraved stock noting that it was awarded to Shipley as the Hunter Education Instructor of the Month.

— Reprinted in part from Hunter Education Instructor magazine.

## The Summer Driving Season and Iowa Gasoline Prices

Predicting Iowa's gasoline prices is a complex — and many times fickle — undertaking. After a winter and spring of low gas prices, consumers should expect 1998's prices to peak in early summer between \$1.05 and \$1.10. This is about \$.10 to \$.15 lower than one year ago. What factors affect this prediction?

Gasoline prices can be affected by a number of unusual and unpredictable circumstances. When the Exxon Valdez ruptured off the Alaska coast, spilling its cargo of crude oil, gas prices skyrocketed. However, the amount of oil lost was only a tiny portion of U.S. consumption. On the other hand, the March 1998 decision by OPEC to reduce oil production by two million barrels per day — a substantially larger impact to supply — created only a small blip in Iowa gasoline prices.

So how does Iowa estimate gasoline prices from month to month or even day to day? The Energy Bureau collects and re-

views energy prices and supply data from a historical perspective, helping to anticipate future gasoline prices.

The chart demonstrates the monthly average gasoline price from 1980 to 1997. Each year, prices have risen dramatically in summer months and peaked in June. The largest factor contributing to the price increase is the rise in individual driving. During a typical year, Iowa gasoline consumption can rise 25 percent between March and August.

Another issue affecting summer prices is the much discussed El Nino weather pattern, which created a warm winter season and kept gasoline prices down because of low demand of petroleum-based products. This resulted in a higher-than-normal build up of gasoline reserves, creating stable gasoline prices for the summer peak driving season.

Based on all these inputs, Iowans should experience lower-than-normal gasoline prices throughout the summer — a prediction many will enjoy, especially those with vacation and summer plans.

**Iowa Monthly Average Unleaded Gasoline Prices  
1980-1998**





# Conservation Update

## Prairie Chicken Population Booming

Spring prairie chicken surveys have been completed in southern Iowa, according to Mel Moe, DNR wildlife biologist, and they show a large increase in numbers, reflecting the good nesting and overall weather conditions of the last year.

Surveys are made at booming grounds, usually open hilltops where groups of males display to attract hens. This year, eight booming grounds were located with a minimum of 43 males present. This is up from four booming grounds and 17 males in 1997. Booming grounds were found this year in Adair, Ringgold and Decatur counties. "There is a good chance there are more booming grounds that we did not find in surrounding counties," Moe says.

"The cooperation of the public is needed for us to do a good job in keeping track of these birds," Moe also states. "We appreciate reports of any sightings." To report a prairie chicken sighting, contact your local conservation officer or other local DNR office, or Mel Moe at Mt. Ayr, IA, 50854, phone (515) 464-2220.

"With a good sign-up in the CRP program in this area, the future for prairie chickens looks good for the next 10 years," says Moe. Future plans call for acquiring some key areas of prairie chicken habitat by the DNR, working with landowners to improve habitat on private land, and possible future stockings to fill gaps between established populations.

## Iowa's 1997 Deer Harvest Sets New Record

Iowa deer hunters set another record in 1997, harvesting more than 118,000 deer, according to Willie Suchy, DNR's deer biologist. This is nearly 11,000 more deer than the previous record in 1996.

Suchy explained that liberal regulations and a high deer population were the primary reasons for the increase. Good



Roger A. Hill

**Spring surveys show a booming prairie chicken population in southern Iowa. The number of booming grounds doubled from four to eight since 1997. With good sign-up in the CRP program, the future for prairie chickens looks good.**

weather during most of the fall also allowed hunters to experience their most successful season.

The doe kill increased by more than 9,000, which was the goal of last year's regulations. The liberalized regulations in northern Iowa, special hunts in state parks and urban areas and the special January season in southern Iowa all contributed to the increase in the number of does killed.

Shotgun hunters in particular had an exceptional season with a success rate of 75 percent in the first season, while second season hunters were nearly as successful at 71 percent. About 75 percent of all antlerless deer taken were does. Bowhunters had their most successful year with 42 percent of the hunters tagging a deer.

Last year was the first year handguns were legal to hunt deer, although they were restricted to use in the late muzzleloader season. Nearly 3,000 hunters reported using a handgun; about 20 percent of those actually killed a deer using a handgun. This fall, handguns will be legal during all seasons except the early muzzleloader,

youth and bow seasons.

This fall, hunters should expect a good season, with regulations similar to last year. Bonus antlerless deer licenses and a special January season will again be in effect in many counties in southern Iowa. Special hunts in several parks and urban areas will again be used to keep deer numbers in check.

## Youth Deer and Fall Turkey Applications

Applications for Iowa's fall turkey hunting season and the youth deer season are available in county recorders' offices, according to Ross Harrison of the DNR.

Turkey hunters who want to buy the \$22 license to hunt with either a gun or bow during the Oct. 12 through Nov. 30 season will have until July 24 to get their applications to the DNR. The free, landowner/tenant turkey licenses must be postmarked by Aug. 21. Hunters who just want to hunt



# Conservation Update

with a bow can buy their \$22 license up to the last day of the turkey archery season, Jan. 10.

"If the paid, gun/bow licenses quotas are not filled during the first application period, a second application period will run from Aug. 18-22," adds Harrison. Landowner/tenants may get a second license for \$22, only during the second paid gun/bow application period, if one is held.

Applications for the youth deer season will be accepted through July 17, and will be issued to Iowa residents only who are at least 12 years old, but no more than 15 years old, by Sept. 1 of this year. Cost of the license is \$25. The youth deer season will be Sept. 19 through Oct. 4.

Applications are available at county recorder and DNR offices, or can be requested by writing the DNR at 900 E. Grand, Wallace State Office Bldg., Des Moines, IA 50319-0034, or by calling (515) 281-HNTR (4687).

## Tick Season In Full Swing

Spring and early fall is the time for ticks. Ticks are prowling the woodlots and grasslands, and people spending time outdoors this season should take precautions to protect themselves from tick-borne diseases such as Lyme disease.

The deer tick, the size of a pinhead, is orange-brown with a black spot near the head and is the primary carrier of Lyme disease, a bacterial infection. To be safe, people should wear long sleeves and pants and use some kind of insect repellent designed to repel ticks.

Symptoms of Lyme disease may include a ring-shaped rash which may occur within 4 to 20 days of the initial bite, fever, chills, headache, stiffness in joints, weakness and fatigue.

If Lyme disease or its symptoms are suspected, contact a doctor. If detected early, Lyme disease is usually treatable with antibiotics.

## Boat Smart From The Start

In an average year, about 800 people in the U.S. die from boating-related accidents, according to the U.S. Coast Guard. Nine out of ten of those victims were not wearing a life jacket. In Iowa, the yearly average is about five deaths.

Earlier this year, in coordination with National Safe Boating Week, Gov. Terry E. Branstad proclaimed May 16 - 22, Safe Boating Week in Iowa. This year's Safe Boating Week stressed the need to wear life jackets with the theme "Boat Smart from the Start. Wear Your Life Jacket."

According to Sonny Satre, DNR recreational safety coordinator, most accidents occur when someone falls overboard or capsizes their boat. Even experienced swimmers can lose coordination and drown. Heavy clothing, boating under the influence of alcohol or drugs, or cold water can also be factors in drowning.

Even though Safe Boating Week is over, boat safety — including the use of a life jacket — is still a must.

The DNR, U.S. Coast Guard and the National Safety Council offer the following tips for using a life jacket:

- Buy your own personal life jacket and use it. One size does not fit all. There may not be one available that fits, to rent or borrow.
- Look at the label. It will provide weight, size and use information.
- Try it on to check the fit. Once the straps and buckles are secured, it should not slip over your head or come above your ears.
- Never use water toys in place of a U.S. Coast Guard-approved life jacket.
- Throw away a life jacket if you find air leakage,

mildew or rot.

- Never alter a life jacket. It could lose its effectiveness.
- Check your life jackets yearly for floatation and fit.
- Wear a life jacket to set an example for children while you increase your chances of survival.

For more information and tips on using life jackets, contact: Sonny Satre, recreational safety coordinator, at (515) 281-8652, or call the toll-free U.S. Coast Guard Infoline at 1-800-368-5647.

This poster marks the winning entry for the 18th annual boating & water safety contest. The artwork is by grand-prize winner Ashley Gotto, a 5th-grader at East Monona Elementary in Moorhead, Iowa.

**PWC**

**Safety**

**IS NO ACCIDENT**

18TH ANNUAL BOATING & WATER SAFETY POSTER CONTEST  
1998 GRAND PRIZE WINNER  
ASHLEY GOTTO - 5TH GRADE  
EAST MONONA ELEMENTARY  
MOORHEAD, IOWA

IMT INSURANCE



# Conservation Update

## Wildlife Artist Makes Donation to TIP

Well-known wildlife artist Larry Zach of Ankeny has generously offered the proceeds from the sale of a select few of his "Old Rivals" print to the Turn In Poachers (TIP) organization of Iowa. Revenue generated from the sale of these prints will be ear-marked as rewards to informants for successful TIP cases involving trophy-class whitetail deer taken illegally in Iowa. The TIP organization will determine the amount of the reward to be paid out on a case-by-case basis.

Zach, an avid sportsman, is looking forward to this cooperative effort with TIP and the Iowa DNR's wildlife law enforcement efforts to curb the poaching of trophy whitetail deer in Iowa.

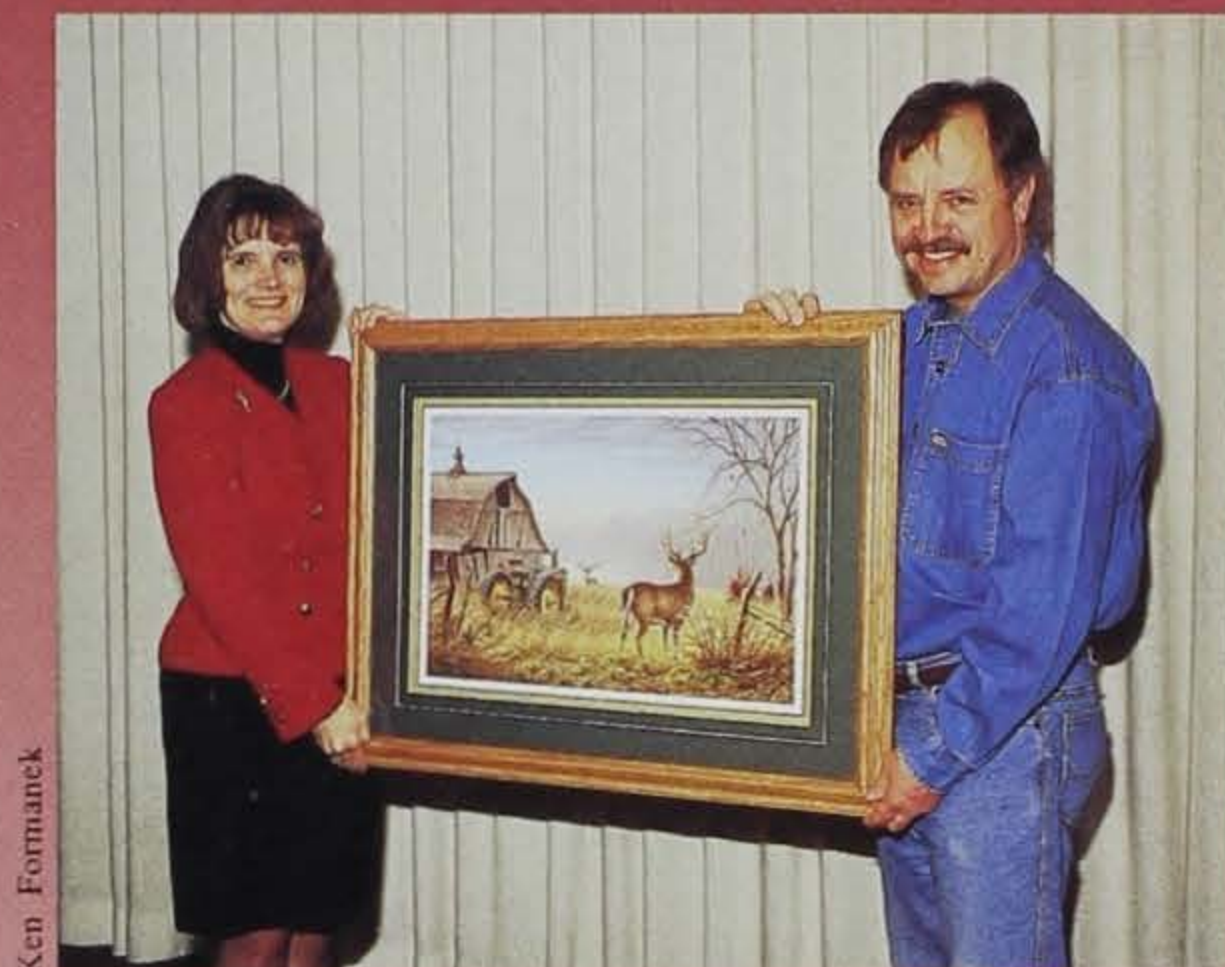
"Iowa is blessed with the potential to grow trophy-class whitetail bucks rivaling those from any place in North America," says Zach. "It is a shame when they are taken illegally by poachers. I'm excited about the opportunity to work with the Iowa DNR and the TIP organization to help protect these magnificent animals for the sportsmen, sportswomen and other wildlife enthusiasts here in Iowa."

## Farm Ponds Stocked At No Charge

Farm ponds are stocked by the DNR to increase fishing opportunities, according to Jerry Hudson, DNR fisheries biologist.

Hudson says although most farm ponds are built to control soil erosion or provide water for livestock, with proper care many ponds can also provide good fishing.

"We stock about 200 ponds, statewide, each year," Hudson said. "Our typical stocking formula is an October stocking of 1,000 bluegill and 100 channel catfish per acre. The following June, the pond is stocked with about 70 largemouth bass fingerlings per acre."



Ken Formanek

Wendy Zohrer, current president of Turn In Poachers of Iowa, Inc. (TIP) helps well-known wildlife artist, Larry Zach showcase a print entitled "Old Rivals." Proceeds from the sale of a select few of his prints will benefit the Turn In Poachers organization of Iowa.

"The DNR provides the fish free of charge, but certain criteria must be met," Hudson said. "The pond must be newly constructed or renovated and at least a half-acre in size. It must contain no fish, be at least eight feet deep at the deepest point, and fenced to exclude all livestock."

Laying a common misunderstanding to rest, Hudson said that pond owners do not have to allow public access to the pond to get DNR fish. "While the DNR and anglers appreciate the access privileges, no such requirement or agreement is involved," says Hudson.

"The pond stocking program offers a tremendous benefit to Iowa's anglers," says DNR Fisheries Bureau Chief Marion Conover. "Last year, one of every three anglers reported fishing in a farm pond, and statewide, licensed anglers took more than 1.5 million fishing trips to farm ponds."



Roger A. Hill



# Conservation Update

## Hail Deadly to Some Wildlife

"Recent strong thunderstorms in northern and central Iowa may have seriously impacted certain species of upland wildlife," said Todd Bogenschutz, DNR's upland wildlife biologist.

Field reports across part of northern Boone and eastern Story counties documented many dead pheasants in hail damaged fields. Bogenschutz stated, "Golf ball to softball-sized hail will kill most upland wildlife instantly if they are caught in the open." With the fast moving nature of these storms Bogenschutz believes that was the fate of many.

Groups of pheasants were found dead

in fields around Colo and Hendrickson Marsh. Bogenschutz said, perhaps 50-60 percent of the pheasants in the heaviest hail areas may have died. On the plus side he said these hail storms usually do not cover large areas, and the impact on the statewide population of pheasants and other wildlife will be minor.

In localized areas some hunters may be very disappointed this fall if their favorite hunting spot happened to be in the center of a hail area. Many such areas are being replanted and if hunters take note of this fall of unharvested or late-harvested fields it may indicate where a hail storm went through in the summer.

## Upcoming NRC, EPC and Preserves Board Meetings

The dates and locations have been set for the following meetings of the Natural Resource Commission, Environmental Protection Commission and the Preserves Board of the Iowa Department of Natural Resources.

Agendas for these meetings are set approximately 10 days prior to the scheduled meeting date. For additional information, contact the Iowa Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0034.

## The Hawkeye Fly Fishing Association



The Hawkeye Fly Fishing Association (HFFA), with 427 members is a nonprofit organization of Iowa anglers and conservationists dedicated to the promotion of fly fishing and associated activities; to education of others in the joys and art of fly fishing; to the preservation and conservation of those natural resources that are so important to fly fishing; and to the maintaining of fellowship and camaraderie found among fly fishers.

Since the club's formation, it has been involved in conservation work to preserve Iowa's fly-fishing waters. The club has worked on a variety of projects such as:

- trout stream improvement in northeast Iowa through fencing, building bank hides and assisting fish population studies
- warm-water stream improvement for smallmouth bass
- fighting for special regulations to protect special fisheries
- land acquisition with a \$5,000 donation to the Iowa Natural Heritage Foundation to fund the acquisition of 40 acres on South Pine Creek
- participation in the DNR's Adopt-A-Stream program with the adoption of Spring Branch and French Creek

The HFFA holds an annual Fly Tiers Rendezvous allowing members to exchange information and a few fish tales. A bimonthly publication, *The Flyline*, provides informative articles on fly fishing and keeps members abreast on club news.

For more information on the Hawkeye Fly Fishing Association contact Gary D. Kruse, 3175 Kaufman Ave., Dubuque, Iowa 52001; (319) 582-9461.

## Natural Resource Commission:

- July  
No Meeting
- August 13  
Backbone State Park
- September 10  
Spirit Lake
- October 15  
Pisgah
- November 12  
Des Moines
- December 10  
Des Moines

## Environmental Protection Commission:

- July 20  
Des Moines
- August 17
- September 21
- October 19
- November 16
- December 21

## State Preserves Advisory Board:

- August 21  
Cherokee County



# Warden's Diary

## ***"I Want to Do What You Do"***

Part of our job is public speaking. It's not something I particularly like. A lot of times I really don't know what I could say that anyone would be particularly interested in hearing. But, for some reason, we get asked to speak at civic organizations, conservation organizations, career days, you name it.

A lot of times we hear, "I've always wanted to be a conservation officer. What do I need to do?" Incidentally, this is the correct way to ask the question. One time, someone asked the man who inspired me to be a conservation officer, Wendell Simonson, the same question. But, he asked, "Do you have to know anything to be a conservation officer?" Wrong way to ask it! I can just see Wendell, a big man, towering over the poor guy giving the, "look" he was capable of giving. He told me he told the guy, "Well, three days ago I couldn't even spell Game Warden, and today I am one!" Then he walked away. Even more funny, because that wasn't true. Wendell Simonson was a giant in the field, with more than 30 years experience and a wealth of hard-earned knowledge. He was someone I looked at and thought, "No way will I possibly ever know as much as he knows."

Hopefully, this will be a guide if you are a young person looking at us as a career.

If you're in school, stay there. We require a high school diploma. But, quite honestly, you're looking at needing a four-year college degree because you will be competing with those who have degrees. We have officers with many different educational backgrounds, but the majority of backgrounds are in the natural sciences, particularly fish and wildlife biology.

Get experience. Again, there is a vast amount of competition. Recently, we had approximately 400 applications for two positions. If you're a college student, consider making application as a summer waters aide patrolling lakes and rivers. This will give you a taste of the reality of law enforcement and of dealing with people to see if it's really for you or not. State parks, county conservation boards, and municipal recreation departments hire summer help in different areas. You might also explore internships and summer help in our fisheries or wildlife bureaus.

Nothing happens until you take the test for the position of conservation officer, and get on the list of applicants. This test is only given periodically by the Iowa Department of Personnel. Contact your nearest Job Service office to find out when and where the test is being given.

When a position opens, the Law Enforcement Bureau will request a list of scores and interview persons having certain scores from the test. From there, applicants will take a second written test. From there, applicants will be given psychological

tests, and physical agility tests as required from the Iowa Law Enforcement Academy. Those passed will undergo a background check, then selections to fill the openings will be made. It's a long, sometimes complicated process.

Successful applicants will attend the Law Enforcement Academy, then go to field training with Field Training Officers before being located in an assigned territory.

It may take persistence. Again, it's very competitive. Don't give up if you are unsuccessful. You may have to consider employment in an alternate field of law enforcement or conservation while you pursue your goal.

Probably most important, thoroughly consider why you want this job. Do you want it just because you like to hunt and fish? That's fine, but are you willing to do less of it since you will have less time? Are you willing not to be able to hunt on opening weekends because you'll be watching those who can? Are you self-starting, or do you constantly need someone to tell you what to do?

Do you like wildlife? Good, but do you like the two-legged kind? Do you enjoy working with the public? Do you have an attitude of service? Your clientele will be hunters, anglers, boaters and other users of the outdoors. Most are the greatest people you will ever want to meet. A few will be disagreeable. Are you willing to serve them, too?

Can you deal with your home being an office? Can you deal with your plans being interrupted by a phone call? Can you deal with not being with your family on summer holidays while you watch everyone else play and enjoy their families?

Are you interested in police work and its inherent risks? Many times I have people tell me, "I want to do what you do because I like to hunt and fish."

I answer, "How do you feel about being a police officer?"

"What's that got to do with it?" they often reply. Know what you're getting into.

Do you have a love of something? That love is Iowa's natural resources. Do you feel called to protect them? Consider your answer carefully. To do this job, you must embrace a way of life. There is good and bad. It's not something where you can always quantify your accomplishments. You may have to make decisions in a split second that everyone else will have the luxury of having the next 20 years to second guess. People will not always like what you do and will often criticize you just because of the badge you wear. A badge representing more than 100 years of service and tradition.

If you find that appealing, then focus on your goal. I find it to be a career second to no other. Good luck.

by Chuck Humeston



## Parting Glance



**“I hope I’m not a  
trendy new hors d’oeuvre.”**



